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Methylenetetrahydrofolate reductase C677T polymorphism and susceptibility to epilepsy

Vandana Rai¹ · Pradeep Kumar¹Received: 14 August 2018 / Accepted: 15 September 2018 / Published online: 28 September 2018
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Abstract

Background Methylenetetrahydrofolate reductase (MTHFR) gene C677T polymorphism was reported as risk factor for multiple diseases due to its role in conversion of homocysteine to methionine. The aim of the present meta-analysis was to find out the validity of association of C677T polymorphism with epilepsy susceptibility.

Methods Pubmed, Science Direct, Springer Link and Google Scholar, databases were searched for relevant studies up to January, 31, 2018. The pooled odds ratios (ORs) with 95% confidence intervals (CIs) were performed using five genetic models. All statistical analysis was done by MetaAnalyst and Mix programs.

Results Except recessive model, significant association was found between MTHFR C677T polymorphism and epilepsy risk in other four genetic models (T vs C: OR = 1.29, 95% CI = 1.08–1.52, $p = 0.004$; TT vs CC: OR = 1.48, 95% CI = 1.19–1.82, $p = 0.0003$; TT + CT vs CC: OR = 1.20, 95% CI = 1.05–1.38, $p = 0.008$; TT vs CT + CC: OR = 1.35, 95% CI = 1.11–1.62, $p = 0.002$). Similarly, in the subgroup analysis based on ethnicity, significant association was found in Asian (T vs C: OR = 1.85; 95% CI = 1.15–2.99; $p = 0.03$) and Caucasian populations (TT vs CC: OR = 1.38; 95% CI = 1.10–1.73; $p = 0.005$). No evidence of heterogeneity and publication bias was detected in present meta-analysis.

Conclusion In conclusion, results of present meta-analysis suggested that 677T allele of MTHFR is significantly increases the epilepsy susceptibility.

Keywords Epilepsy · Polymorphism · MTHFR · C677T · Homocysteine · Meta-analysis

Introduction

Epilepsy is a common neurological disorder, triggered by abnormal electrochemical activities in the brain, resulting in seizure [2, 67]. Worldwide, about more than 65 million individuals suffer with epilepsy with more than 80% of epileptics residing in low- and middle-income countries [6, 17, 34, 60, 63, 66]. In all epileptics, about 40% cases are of idiopathic epilepsies (IEs). In idiopathic epilepsy, genetics play important role. Epilepsy is genetically heterogenous and showed autosomal dominant and recessive mode of inheritance, which suggests complex inheritance, i.e., involvement of many genes and nongenetic factors also [13, 19, 28, 56, 67].

Numerous studies have reported that hyperhomocysteinemia is a risk factor for stroke, psychiatric, and neurodegenerative diseases [14, 25]. About 10–40% epileptic patients exhibit hyperhomocysteinemia [1, 8, 10, 25, 27]. Folate is essential for DNA synthesis, methylation, and repair. It provides primary methyl donor for conversion of homocysteine in to methionine. Folate deficiency or folate pathway enzyme variants are the main cause of hyper homocysteinemia. Most of the folate/methionine genes are polymorphic, especially C677T polymorphism of methylenetetrahydrofolate reductase (MTHFR) and A66G polymorphism of methionine synthase reductase (MTRR). The frequency of these polymorphisms (C677T, A1298C and A66G) varies greatly in different populations [53, 54].

MTHFR gene is located on chromosome 1p. Several polymorphisms are reported in MTHFR gene, but C677T polymorphism is the most studied and clinically important polymorphism, in which cytosine is substituted with thymine at position 677, leading to substitution of alanine to valine (A333V). MTHFR mutant homozygous (VV) enzyme has approximately 70% decreased enzyme activity in compare to normal MTHFR enzyme [22]. MTHFR C677T

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Review

MTHFR C677T polymorphism and risk of esophageal cancer: An updated meta-analysis



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ABSTRACT

Background: Methylenetetrahydrofolate reductase (MTHFR) is a key enzyme involved in folate/homocysteine metabolism. A polymorphism C677T has been reported to be linked with risk of several diseases/disorders like birth defects, metabolic and psychiatric disorders and different cancers. The association between esophageal cancer and MTHFR gene C677T polymorphism has been investigated in several case-control studies, which rendered contradictory results.

Aim: To shed light on association between MTHFR C677T polymorphism and risk of esophageal cancer, a meta-analysis of published case control association studies was conducted.

Methods: Four electronic databases: PubMed, Google Scholars, Elsevier and Springer Link were searched up to August 2016. All statistical analyses were performed using MetaAnalyst and Mix (version 1.7). Odds ratios (ORs) with their 95% confidence intervals (95% CIs) were calculated. Total twenty-nine studies with 6520 cases and 9192 controls were included in the present meta-analysis.

Results: The results of meta-analysis suggested that there were significant association between C677T polymorphism and esophageal cancer risk using overall comparisons in five genetic models (T vs. C: OR = 1.20, 95% CI = 1.1–1.27, $p < 0.0001$; TT + CT vs. CC: OR = 1.37, 95% CI = 1.14–1.62, $p = 0.0004$; TT vs. CC: OR = 1.43, 95% CI = 1.1–1.84, $p = 0.005$; CT vs. CC: OR = 1.35, 95% CI = 1.15–1.58, $p = 0.0002$; TT vs. CT + CC: OR = 1.19, 95% CI = 0.99–1.42, $p = 0.05$). Publication bias was absent. Subgroup analysis based on ethnicity and source of controls were also performed.

Conclusion: In conclusion, results of present meta-analysis showed significant association between MTHFR C677T polymorphism and esophageal cancer.

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Research Article

Methylenetetrahydrofolate Reductase A1298C Polymorphism and Autism Susceptibility

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Abstract

Background: Methylenetetrahydrofolate reductase (*MTHFR*) is a key enzyme involved in folate/homocysteine metabolism. A polymorphism A1298C has been reported to be linked with risk of several diseases/disorders like birth defects, metabolic and psychiatric disorders and different cancers. The association between autism and *MTHFR* gene A1298C polymorphism has been investigated in several case-control studies, which rendered contradictory results.

Aim: To shed light on association between *MTHFR* A1298C polymorphism and risk of autism, a meta-analysis of published case control association studies was conducted.

Methods: Four electronic databases: PubMed, Google Scholars, Elsevier and Springer Link were searched up to August, 2016. All statistical analyses were performed using MetaAnalyst and Mix (version 1.7). Odds ratios (ORs) with their 95% confidence intervals (95% CIs) were calculated. Total seven studies with 1,424 cases and 1,513 controls were included in the present meta-analysis.

Results: The results of meta-analysis suggested that there were no significant association between A1298C polymorphism and autism risk using overall comparisons in five genetic models (A vs C: OR=0.99, 95%CI=0.80-1.23, $p=0.005$; AC vs AA: OR = 1.04, 95% CI = 0.75-1.43, $p=0.82$; CC vs AA: OR = 0.16, 95% CI = 0.06-0.45, $p=0.006$; CC+AC vs AA: OR = 0.46, 95% CI = 0.25-0.80, $p=0.006$; CC vs AC+AA: OR = 0.15, 95% CI = 0.06-0.37, $p<0.0001$). Publication bias was absent.

Conclusion: In conclusion, results of present meta-analysis showed no significant association between *MTHFR* A1298C polymorphism and autism risk.

Keywords: Autism; *MTHFR*; A1298C; Homocysteine

Introduction

Autism is a complex neurodevelopment disorder involving multiple organ systems, primarily immunological, gastrointestinal and neurological ones [1] and appears in the early years of life [2-4]. It is currently estimated that 3-6 children out of 1000 worldwide have autism spectrum disorder (ASD) [5]. The incidence of autism has increased rapidly in recent decades [6,7]. It is a heterogeneous neurological disorder characterized by three core behavior abnormalities-namely, deficits in social interaction, reduced verbal and nonverbal communication, and highly focused stereotyped behaviors that emerge after a period of relatively normal development [8]. A number of factors such as genetic, epigenetic, environmental and autoimmune function have been implicated in the etiology of autism [6,9-14].

One carbon (C1) metabolism is a likely pathway to regulate epigenetic processes in autism [15]. C1 metabolism is comprised of three interconnected pathways-folate cycle, methionine cycle and transsulfuration cycle. The folate and methionine pathway mediates *de novo* nucleotide synthesis for DNA repair and replication and DNA methylations. The transsulfuration pathway balance cellular redox.

There are several evidences that in autistic children, DNA methylation and DNA repair are altered [16,17] as well as dysregulation of redox homeostasis [18], which reinforces a critical role for C1 metabolism in the etiology of ASDs [15]. One carbon metabolic pathway include several genes and most of them are polymorphic especially methylenetetrahydrofolate reductase (*MTHFR*) and methionine synthase reductase (MTRR) and frequency of mutant alleles varies greatly worldwide [19-25].

Folate facilitates methionine synthesis from homocysteine by acting as a cofactor for methylene tetrahydrofolate reductase (*MTHFR*) which converts 5,10-methylenetetrahydrofolate (CH₂THF) to 5-methyltetrahydrofolate (CH₃THF). 5-methyltetrahydrofolate donates methyl group for the conversion of homocysteine in to methionine, which further converted in to S-adenosyl-methionine (SAM). SAM is universal methyl group donor, which transfer methyl to DNA, RNA, proteins, phospholipids, or neurotransmitters [26]. Consistently global DNA hypomethylation observed in autistic children [27-29]. Methyl deficiency may strongly impact epigenetic remodeling during key periods of development.

MTHFR gene is 20 kb long (20,336 bp) and mapped at 1p36.3

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"NQO1 Gene C609T Polymorphism (dbSNP: rs1800566) and Digestive Tract Cancer Risk: A Meta-Analysis."

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ABSTRACT

Several studies reported that polymorphism C609T (rs1800566) in (NAD(P)H): quinoneoxidoreductase 1 (NQO1) gene is associated with risk to digestive tract (DT) cancers, like esophageal cancer (EC), gastric cancer (GC), and colorectal cancer (CRC). Authors conducted a meta-analysis to investigate association between C609T polymorphism and DT cancer risk. Eligible studies were extracted from the databases of PubMed, Google Scholar, Science Direct, and Springer Link. All retrieved articles were evaluated. All statistical analyses were performed using Open Meta-Analyst and MIX1.7 programs. A total of 34 studies including 12,043 DT cancer cases and 15,209 healthy controls were included in the present meta-analysis. Results of meta-analysis revealed a significant association between NQO1 C609T polymorphism and DT cancer risk adopting all 5 genetic models (T vs. C: OR = 1.21, 95% CI = 1.11–1.31, $p < 0.001$; TT vs. CC: OR = 1.48, 95% CI = 1.22–1.79, $p < 0.001$; TT + CT vs. CC: OR = 1.23, 95% CI = 1.12–1.35, $p < 0.001$; TT vs. CT + CC: OR = 1.36, 95% CI = 1.15–1.60, $p < 0.001$; CT vs. CC: OR = 1.16, 95% CI = 1.07–1.27, $p < 0.001$). In the stratified analysis based on cancer types, significant associations were observed between NQO1 C609T polymorphism and GC (OR = 1.38, 95% CI = 1.11–1.72, $p = 0.003$) and CRC (OR = 1.18, 95% CI = 1.06–1.30, $p = 0.001$), but not with EC (OR = 1.16, 95% CI = 0.99–1.35, $p = 0.06$). Furthermore, stratified analysis based on ethnicity indicated that there was a significant association between NQO1 C609T polymorphism and DT cancer risk in the Asian (TT vs. CC: OR = 1.55, 95% CI = 1.21–2.00, $p \leq 0.001$) as well as in Caucasian populations (TT vs. CC: OR = 1.34, 95% CI = 1.04–1.73, $p = 0.02$). In conclusion, the results of meta-analysis suggested that the NQO1 C609T polymorphism is a risk factor for DT cancers, including GC and CRC.

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Introduction

Digestive tract (DT) cancers, which include esophageal cancer (EC), gastric cancer (GC), and colorectal cancer (CRC), are the most common cancers worldwide (1,2). Globally, GC and EC are second and sixth leading cancer, respectively (3,4), whereas CRC is the third most common cancer in males and the second in females (5,6). The wide geographical variations in the incidence of DT cancer suggest that there are major genetic and environmental risk factors such as smoking, heavy alcohol drinking, and poor dietary pattern which influence the development of DT cancer (6,7).

Carcinogens generally undergo bioactivation and inactivation by phase I and phase II enzymes. Quinone oxidoreductases (NAD(P)H): quinoneoxidoreductase 1 (coded by NQO1 gene) and NRH: quinoneoxidoreductase 2 (coded by NQO2 gene) are phase II cytosolic enzymes that catalyze metabolism of quinones (8).

NQO1 is a multifunctional antioxidant and plays important role in cell protection against oxidative stress (9). This phase II enzyme is polymorphic in humans, so that differences in carcinogen metabolism may determine individual's susceptibility to chemically induced cancers. NQO1 is described as anticancer enzyme (10). NQO1 gene expression is elevated in some human cancers such as breast, colon, and lung (11–13).

NQO1 gene is located at chromosome 16q22.1. Several polymorphisms were identified in the NQO1 gene (14). However, the most studied and clinically important polymorphism is the C609T (dbSNP: rs1800566) in exon 6 (proline187serine) (15–17). The variant NQO1 (P187S) enzyme is very unstable with reduced enzymatic activity and is rapidly ubiquitinated and degraded by the proteasome (18). Functional studies have suggested that the NQO1 protein encoded by the CC homozygous genotype (Pro/Pro) has full enzymatic activity, while the TT

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Review

Fetal MTHFR C677T polymorphism confers no susceptibility to Down syndrome: Evidence from meta-analysis



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ABSTRACT

Maternal methylenetetrahydrofolate reductase (MTHFR) C677T polymorphism is reported as risk factor for Down syndrome (DS) pregnancy but fetal MTHFR C677T polymorphism was not well studied as risk factor for DS. Some studies were published, but results were controversial. Hence a meta-analysis of all published studies investigated DS case MTHFR polymorphism were performed to explore the association between C677T polymorphism of individual and DS risk. Crude odds ratios (ORs) with 95% confidence intervals (CIs) were calculated to estimate the strength of association. The analyses were conducted with meta-Analyst and MIX software. Total five case-control studies with 401 DS cases and 529 controls were included in present meta-analysis.

Meta-analysis results suggested that MTHFR C677T polymorphism did not contribute any DS risk in overall population using four genetic models (for T vs. C: OR = 1.56, 95% CI = 0.83–2.89). However, co-dominant model analysis showed significant association between MTHFR C677T polymorphism and DS risk (OR = 1.66; 95% CI = 1.22–2.25; $p = 0.001$). Less heterogeneity ($I^2 = 48.31$), so fixed effect model was used. In conclusion, present meta-analysis suggests that MTHFR C677T polymorphism of fetus is not risk factor for DS.

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Strong Association of C677T Polymorphism of Methylenetetrahydrofolate Reductase Gene With Nonsyndromic Cleft Lip/Palate (nsCL/P)

Vandana Rai¹

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Abstract Methylenetetrahydrofolate reductase (MTHFR) is essential for DNA biosynthesis and the epigenetic process of DNA methylation. It has been reported that abnormal DNA methylation contributes to the pathogenesis of congenital anomalies. There were many published case control studies assessing the associations of MTHFR C677T polymorphism with risks of nonsyndromic cleft lip with and without palate (nsCL/P), but with inconsistent results. To derive a more precise estimation of the relationship, a meta-analysis was performed. Eligible articles were identified by search of databases including PubMed, Science Direct, Google Scholar and Springer Link up to December, 2015. Finally, a total of 22 studies with 3724 nsCL/P cases and 5275 controls were included in the present meta-analysis. Odds ratios (ORs) with corresponding 95% confidence intervals (95% CIs) were pooled to assess the association. Subgroup analysis based on ethnicity was also performed. All statistical analyses were done by MIX program. Meta-analysis results suggested that MTHFR C677T polymorphism contributed to the increased nsCL/P risk in overall population using four genetic models except homozygote model (for T vs. C: OR = 1.24, 95% CI = 1.1–1.4; for TT + CT vs. CC: OR = 1.29, 95% CI = 1.04–1.59; for CT vs. CC: OR = 1.26, 95% CI = 0.98–1.63; for TT vs. CC: OR = 1.02, 95% CI = 0.74–1.4; for TT vs. CT + CC: OR = 1.36, 95% CI = 1.05–1.74). In conclusion, results of present meta-

analysis suggested that MTHFR C677T polymorphism is significantly associated with nonsyndromic orofacial cleft.

Keywords nsCL/P · MTHFR · C677T · Folate · Meta-analysis · Polymorphism

Abbreviations

nsCL/P Nonsyndromic cleft lip with or without cleft palate

MTHFR Methylenetetrahydrofolate reductase

Introduction

Nonsyndromic cleft lip with or without cleft palate (nsCL/P) is a common congenital defect with the prevalence rate of 1 in 300–2000 birth depending upon ethnicity, and socioeconomic status [1–3]. Twin and family studies suggested that genetic factors play an important role in the etiology of nsCL/P [4]. The risk of recurrence in first-degree relatives of affected persons is about 40-folds greater than in the general population, which also suggests a strong genetic component [5–7]. Its frequency is highest in Asian and Native American populations of Asian genetic origin, intermediate in Caucasian population and the lowest in African and African-American populations [8].

Perinatal intake of folic acid and multivitamins is suggested to provide protection from neural tube defects (NTD) and nsCL/P birth defects [9–17]. Several studies reported that perinatal supplementation of folic acid reduces the risk of neural tube defects (NTD) [18, 19] led to speculation that folic acid supplementation might also

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Proteomic Analysis of the Human Anterior Pituitary Gland

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Abstract

The pituitary function is regulated by a complex system involving the hypothalamus and biological networks within the pituitary. Although the hormones secreted from the pituitary have been well studied, comprehensive analyses of the pituitary proteome are limited. Pituitary proteomics is a field of postgenomic research that is crucial to understand human health and pituitary diseases. In this context, we report here a systematic proteomic

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STRUCTURAL AND FUNCTIONAL *IN-SILICO* ANALYSIS OF TOXIN-ANTITOXIN PROTEINS IN PERSISTENT CELLS OF *PSEUDOMONAS AERUGINOSA*

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Abstract

Pseudomonas aeruginosa is an opportunistic as well as one of the most challenging hospital and community-acquired pathogen producing toxin-antitoxin (TA). The production of TA is thought to regulate the multidrug tolerance and pathogenicity in bacterial pathogens. Recently, it has been well recognized that TA systems play a very crucial role in the formation of persistent cells, which leads to recurrent chronic infections. Toxin-antitoxin proteins interact with RNA and protein molecules present in bacterial cell, which, consequently, halts the normal cellular process by inhibiting the molecules involved in transcription and translation as well as in other metabolic pathways. In this study, we have extensively assessed the homology modeling, protein interaction and functional relationship, along with the active site of TA proteins of *P. aeruginosa*. Our results represent the secondary structures of all TA proteins, which were highly conserved, and their sequence identity was between 88 to 100% through the BLASTp. Additionally, we compared the three dimensional (3D) models for all TA proteins through homology modeling that identified the HigA, HigB, ParD and ParE proteins as good models. Finally, the CASTp was utilized to identify the active site, which is generally specific for the binding of toxin and DNA molecules. The study suggests that all TA proteins found in *P. aeruginosa* have great potential function and responsible for antimicrobial drug tolerance and pathogenicity.

Key words : Persistent cell, toxin-antitoxin, *Pseudomonas aeruginosa*, homology modeling.

Introduction

Development of persistent cells employs bacterial toxin and antitoxin systems to confer multiple drug resistance and occurrence of recurrent and chronic infections (Lewis, 2010). The formation of persistent cells is initiated by the environmental stress, phase of a bacterial cells and exposure of antibiotics (Lee and Lee, 2016; Helaine *et al.*, 2015; Berneir *et al.*, 2013). *P. aeruginosa* is a rare and opportunistic pathogen that cause both acute and chronic infections in human (Balasabramanian *et al.*, 2013). Toxin-antitoxin (TA) systems in bacterial pathogens are composed of toxin and of a cognate antitoxin, which plays a crucial role in persistent cell formation (Verstraeten *et al.*, 2015; Germain *et al.*, 2013). Synthesis of toxins inhibits bacterial protein synthesis, cell wall synthesis, DNA replication, therefore in consequence of a slow

bacterial growth (Page and Peti, 2016) and development of resistant persistent. Although the exact role of TA systems is not clear, but recent findings suggest that these systems play an important role in stress management and antibiotic resistance (Van Melderen, 2010; Gerdes *et al.*, 1986).

Bacterial system possess five categories of TA system, classifies on the basis of their mode of action. However, among five different classes, class II is known to be widely adopted by bacteria and archaea (Schuster and Bertram, 2013; Van Melderen, 2010). The class II TA system is chemically proteinous in nature and its antitoxin system interacts with their cognate toxin and nullifies them (Goeders and Van Melderen, 2014). Additionally, it also inhibits the expression of toxin through suppressing transcription of TA proteins, where it is governed by the interaction of toxin and the palindrome sequence of the promoter (Ramisetty and Santhosh, 2017; Masuda and

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Biodecolorization of brilliant green carpet industry dye using three distinct *Pleurotus* spp.

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Abstract

Biodecolorization potentials of three distinct white-rot fungi including *Pleurotus florida* (PF), *Pleurotus eryngii* (PE) and *Pleurotus sajor-caju* (PS) were assessed both in liquid and on solid media supplemented with carpet industry dye brilliant green. All three fungi produced laccase and peroxidase enzymes. The decreasing order of laccase production was achieved as 388 > 334 > 301 IU/mL in cultures of PF > PE > PS during 15th, 20th and 17th days, respectively, while, decreasing order of peroxidase production was as 72 > 64 > 55 IU/mL in PF > PE > PS on 15th day of PF, PS cultures and on 20th day of PE, respectively. All tested fungi very efficiently degraded different levels (2, 4, 6 and 8%; w/v) of highly complex synthetic brilliant green dye to colorless. However, PF was found to be best amongst the three species tested on solid and in liquid media. In comparison to higher concentrations, lower concentrations of dye were rapidly biodecolorized by all fungal strains. The order of highest biodecolorization potentialities was recorded as 99 > 91 > 83% by PF > PE > PS, respectively with 2% (w/v) of dye under submerged conditions. While, experimental sets with 4% (w/v) dye were found as the second most rapidly biodecolorized sets, that resulted in 90 > 78 > 70% by PF > PE > PS strains respectively. Based on the findings of biodecolorization potentialities PF was most efficient fungus as compared with other fungi by degrading 99% of the 2% (w/v) dye. Therefore, PF can be subjected in the eco-friendly and cost-effective industrial effluent cleanup processes for the environmental sustainability.

Keywords *Pleurotus* spp. · Carpet dyes · Biodecolorization · Brilliant green · Carpet industry

Introduction

Industrial discharges of carpet dyes through dyeing of fabrics, leathers and by paper printing in surrounding environment not only cause undesirable color of water reservoirs but also tremendously influence the components of aquatic ecosystem including plants, animals and microbes. More than 10,000 different kinds of textile industry dyes with an annual production of several metric tones are commercially used worldwide (McMullan et al. 2001; Yang et al. 2011; Ning et al. 2018). In India almost 1.5 million liters of fabric mill effluent per day is discharged in open surroundings, that creates environmental problems (COINDS 2000; Patil et al. 2010). Approximately 10–20% of dyes used in distinct

dyeing processes do not bind with the textile fibers and are carelessly thrown into the open (Murthy et al. 2014; Skariyachan et al. 2016). Synthetic dyes with highly complex aromatic structure make them more stable and difficult to biodegrade (Grassi et al. 2011; Ratanapongleka and Phetsom 2014).

Microbes of different class such as algae, fungi, bacteria, and actinomycetes have been reported for their distinguished ability to decolorize textile dyes (Khehra et al. 2005; Moosvi et al. 2005). Biodegradation of dyes through fungal strains results in breakdown of the dye molecule and consequently detoxification of harmful dyes (Spadaro and Renganathan 1994; Malachova et al. 2006; Svobodova et al. 2007). Under the typical biodiversity of fungal world, the white-rot fungi are most proficient for aerobic degradation (Batal et al. 2015). In particular, the ability of white-rot fungi to biodegrade various types of dyes has established as a highly effective technology governed through oxidoreduction reactions catalyzed by the extracellular enzymes they produce (Toh et al. 2003; Batal et al. 2015). The biological degradation

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Reversal of Antibiotic Resistance by Phage Resistant *Pseudomonas aeruginosa* PA01

Running Title: Interaction of Multiple Drug Resistant Host Biofilm with Potent Ghost

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Abstract Emergence of antibiotic resistance is a serious cause of concern worldwide. Limitation in the discovery of new antibiotics and emergence of resistant infectious microorganisms has directed the attention of researcher toward the phage therapy. Phages are obligate parasite of bacteria and they are highly specific for their host. Phage therapy is an ideal strategy for the control of such infectious pathogens. *Pseudomonas aeruginosa* PA01 is multiple drug resistant (MDR) bacteria, biofilm forming nosocomial pathogen. Phage therapy of PA01 was studied using bacteriophage ϕ s1 isolated from Ganga water, India. During this study, we observed PA01 variants that had evolved resistant mechanism against phage ϕ s1 infection. These phage resistance cells showed variation in their pigment production from green to brown and also showed reversion of antibiotic resistance for erythromycin (ERT), norfloxacin (NRF), kanamycin (KAN), gentamicin (GEN), gatifloxacin (GAT), and imipenem (IMP) class of antibiotics. Biofilm forming ability of prPA01 also decreased by up to 90% and they became more susceptible for imipenem antibiotic as compare to PA01.

Keywords *Pseudomonas aeruginosa*, Biofilm, Imipenem, Bacteriophage and TEM

1. Introduction

Despite modern antibiotics, infectious diseases are still associated with health-problems and are responsible for the deaths worldwide (Schmidt *et al.*, 2008)^[1]. Multiple

drug resistant bacteria have evolved resistant mechanism against almost all available antibiotics. *Pseudomonas aeruginosa* is one of most common opportunistic pathogens associated with nosocomial infection. *P. aeruginosa* have evolved a variety of resistance mechanisms against different classes of antibiotics, particularly carbapenems, Meropenem and imipenem are most widely used antibiotics against gram positive and gram negative bacteria (Shahid *et al.*, 2009)^[2]. According to European Centre for Disease prevention and control, 18% *P. aeruginosa* have evolved resistance mechanism against the carbapenems^[3]. It was suggested that the carbapenems are the last line of drug for the gram negative bacteria (Falagas and Karageorgopoulos, 2008)^[4]. But unfortunately, bacteria have evolved resistant mechanism against carbapenems and *P. aeruginosa* is one of them. Lautenbach *et al.* ^[5], reported that patient with imipenem resistant *P. aeruginosa* infection show high mortality rates. Phage therapy has brought new hope to fight against such last drug resistant bacteria. Bacteriophages are obligate parasite of bacteria. Application of bacteriophage for the control of MDR pathogens is an ecofriendly and economical approach. However, a major drawback of phage therapy also is the rapid development of phage resistance by host pathogen. Basically, bacteria become resistant against phages by, restriction the entry of phages, adsorption blocking and by CRISPR mechanism (Labrie *et al.*, 2010 and Sagar *et al.*, 2017)^[6,7].

In the described system, phages resistant host cell reverse the pathogen's drug resistance, thereby restoring their sensitivity to antibiotics. A drug sensitizing DNA cassette was transferred into using lysogenization by phages rendering previously resistant pathogens to

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Study of Land Use and Land Cover of Ravine Area using Geospatial Satellite Data

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ABSTRACT

Study of ravine erosion is the one of the significant aspects to understand the land status, living habitat and its surroundings environment. In the present study, three distinguish sites site 1, site 2 and site 3 having the coordinates (26°25'40.46"N 78°54'1.94"E), (26°26'28.9"N 78°55'23.41"E) and (26°36'36.68"N 78°53'11.03"E) respectively, of the Bhind district, MP, were selected for ravine status. All the sites were similar vegetation in the case of flora and fauna along with crops. Observation based on native peoples ($\Sigma n=600$) and GPS images of all sites revealed that decreasing the ravines belts/area along with loss of vegetation. The accurate validation of ground truth observation was analyzed through satellite data's which were collected by using Clouds-free Landsat-5 Thematic Mapper (TM), Landsat-7 Enhanced Thematic Mapper (ETM+) and Landsat-8 Operational Land Imager (OLI). The land sat sensor have 30 meters of spatial resolution respectively, while acquisition data for Land sat-5, Land sat-7 and Land sat-8 were 21/1/1992, 24/1/2002 and 26/2/2017 respectively. The analysis of image revealed that about 41% of ravine area were at 1992 out of the total LC like built-up, water bodies, agriculture, land, barren land and flood plains area decreased up to 29.81% in the year of 2017. Among the studied parameters, agriculture land was increased from 1992 to 2017 (i.e. 8% increase). Maximum (70%) of built-up area were observed in the year of 2017 as compared with 1992, followed by barren land (-32%) and ravine area (-28%). Ravine soil loss was directly related with increase built-up area and agricultural land; both the activities are based on human development and thus ways these activities could be induce the development of barren land and also responsible for ravine loss.

1. Introduction

Ravine has specific feature of land forms which is deep narrow steep side valley formed by running water, ravines as a channel of transitory flow, denuded and guided essentially by the process of rejuvenated streams [1]. Ravines erosion is one of the major causes of land degradation, globally [2, 3]. In India ravines are found at the banks of mostly river which have about 4 million hectares of lands [4]. Several researchers earlier reported about ravine erosion in India of Yamuna Chambal ravine zone, Chhota Nagpur ravine zone etc., [5]. Ravine erosion cause serious threats which induce habitat destruction ecological instability which leads biodiversity loss [2, 6]. Recently scarcity of food fulfillment of increased rate of human population triggers engineering ecosystem i.e. agriculture ecosystem, which also encroaches the ravine area. Ravine erosion is largely governing by several factors like climate, topography, soil characteristics, vegetation, geological structure, character of streams and land use practices [6]. Loss of soil decreases considerably and has brought change in moisture and silt retention, growth of dense vegetation which covers in the gully beds [7]. Land degradation through river bank erosion leads adverse effect on drainage systems [6], which is ultimately govern floods along with point and non-point sources of pollution in ravine land, vegetation in these ravine belts suffers from several unfavourable conditions like a biotic and biotic stress as well as nutrient deficiency [3,8,9]. This is an important issue to understand that hazards are often converted to disaster by human activities which related to land degradation/loss, while ravine erosion are slow process due to trenching of river channel [10,11]. To mitigate the adverse effects due to ravine erosion, we must be studying the physical (on site), sociological and climatic aspects of affected ravine region [6], develop ravine reclamation schemes, sustainable agricultural practices etc. Several researchers have drawn their attention towards ravine development [12-14, 3] with special reference of Chambal ravine (1979). Geographical information system (GIS) and remote sensing (RS) are

broadly apply to analyze the real status of land use/land cover (LU/LC), hydrological conditions, forest covers, soil and topographical condition etc., [15]. Monitoring and assessment of targets (surface or sub-surface of earth etc), information derived by RS data have to merged or integrated with database of GIS, therefore RS and GIS application aid to collect, analyze and interpret the large data rapidly and is highly valuable for planning like watershed [11,15-18]. The present work based on the objective to evaluate the ravine status of district Bhind, MP, India by two ways (i) on site observation using GPS imaging and (ii) spatial observation by using GIS tools.

2. Experimental Methods

2.1 Study Sites and Data Collection

In the present study, study area was Bhind district [26.4450°N, 78.7476°E] of the state Madhya Pradesh which covers about area of 4459 km². The sites of ravine area were mostly at the bank of river Yamuna, Chambal, Quari and Sindh which connect to the district Bhind. Ravine area-based study was conducted two ways (i) onsite study with GPS imaging and (ii) using Landsat satellite. Onsite study and field work for collection of ground truth data were based on self-administration questionnaire among native peoples and Garmin global positioning system (GPS) respectively, in February 2017. GPS camera was also used to collect GPS photographs of various land cover types. This information was used as a training data for supervised classification of the satellite data. Satellite data was collected by using Clouds-free Landsat-5 Thematic Mapper (TM), Landsat-7 Enhanced Thematic Mapper (ETM+) and Landsat-8 Operational Land Imager (OLI). The land sat sensor have 30 meters of spatial resolution respectively while acquisition data for Land sat-5, Land sat-7 and Land sat-8 were 21/1/1992, 24/1/2002 and 26/2/2017 respectively.

2.2 Data Processing

Information of different object on the earth surfaces was stored as a digital number (DN) and DN converted to reflectance using two steps

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Isolation and Screening of Azo Dyes Tolerant Bacteria in Semi-Scale Industrial Effluents

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ABSTRACT

Dyes are organic compound have colouring properties of the object which used in industrial application. Huge effluent are releasing by industrial processing, where the microorganism may naturally adopted against particular problems. Present work focused over the selection and screening few best naive candidates from diverse bacteria from semi-skilled dye industrial effluent. From eleven isolated bacterial colonies only two are found resistant against azo dyes (Methyl orange and Trypan blue). During the screening it observed that isolates of bacteria (VN1 and VN2) were tolerant and decolorize azo dye up to 500 ppm. These bacterial strain can be used efficiently removal of dyes contamination from ex-situ and in-situ.

1. Introduction

The poly-aromatic molecules give colour to materials (fabrics, paper, leather, painting and medical industries known as dye. Dyes from industrial effluents are hazards because of mutagenic, carcinogenic and biodegradation resistant properties which effect to the environmental entities in the nature [5, 9]. Several methods are existed to eliminate the Azo dyes from the effluents such as electrochemical treatment, evaporation, reverse osmosis, chemical precipitation, and adsorption process. However these methods are not economic and eco-friendly methods [17]. Biological methods, microbes have ability to decolourize dyes effluents through the process of transformation in this process several metabolites degrade complex wastes in to non toxic simpler by products [16,19]. This ability of microorganism is due to their resistance mechanism of survival such as extracellular precipitation, sorption, enzymatic oxidation and reduction and accumulation [8,12,14]. Biological methods of dye decolourization are efficient, economical and eco-friendly method in which microbes includes bacteria, fungi and yeast.

In present work there is two different bacteria have been isolated which play a significant role among several isolated colonies. These two isolates are further tested over two different azo dyes, which show high potency of decolourization along with good survival resistance.

2. Materials and Methods

2.1 Sampling of Effluent

Samplex of industrial effluent were procured from different semi skilled industries (dyes) which are using different dyes for colouring of fabrics in Jaunpur Uttar Pradesh, India. The water samplex were collected in sterilized screw cap container during the peak time of dyeing and aseptically transported in laboratory with maintained the temperature of 4°C [6,10].

2.2 Physicochemical analysis

In this analysis different parameters pH, temperature, turbidity, conductivity, dissolved oxygen (DO), biological oxygen demand (BOD), chemical oxygen demand (COD) and total suspended solid (TSS) of samplex were also determined [2].

2.3 Sterilization

Steam sterilization process was perform for disinfection of nutrient agar media using autoclave treatment at 121 °C, 15 psi for 20 minutes and same process was adopted for all glass water after proper cleaning [15].

2.4 Isolation and Screening

Procured effluent samplex were undergone a serial dilution from 10⁻⁴ to 10⁻⁸ using double distilled water. The 20 µL of

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MICROWAVE-INDUCED BISMUTH NITRATE-IMPREGNATED CLAY-MEDIATED NOVEL DINITRATION OF 9,10-DIHYDROPHENANTHRENE: A PRECURSOR FOR NEW HETEROCYCLES

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Key words: Microwave, Bismuth Nitrate, Clay, Aromatic Nitration, Polycyclic Aromatics.

Abstract: A facile method for the dinitration of 9, 10-dihydrophenanthrene using domestic microwave-induced bismuth nitrate-impregnated clay is developed

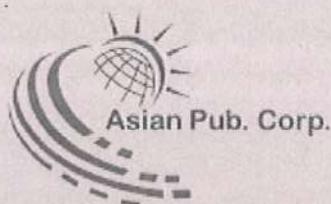
Introduction:

Microwave-induced organic reactions have been widely used in synthetic organic chemistry. Despite the advantages of using automated microwave oven, we find domestic microwave oven can be much superior when undergraduate chemistry demonstration is pursued. Automated microwave oven is extremely expensive and it is difficult to have this type of microwave oven in teaching undergraduate research courses. In addition, it is understandable that a single automated microwave oven is not sufficiently enough to demonstrate reactions to undergraduates who do not have adequate time for research because of their many other course assignments. However, it is crucial for the undergraduates to have research experience. Undergraduates who have participated in laboratory-based research prove to become more successful in their future career development. Our research groups have been engaged in research with numerous undergraduates. Therefore, we always seek procedures that undergraduates can perform with success within the allocated time. The chemistry developed by our undergraduates were instrumental not only for their successes, but also some of these methods were competitive enough for external funding. On this basis, method described herein is not restricted to undergraduates only.

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ARTICLE

Novel Synthesis of Bis- β -Lactams with Unusual 2,7-Phenanthrene and 9,10-Dihydrophenanthrene Derivatives

Ram Naresh Yadav^{1,2}, Jocabed Marquez²,
Ashok Kumar Srivastava¹, Amrendra Kumar Singh¹
and Bimal Krishna Banik^{2,✉}

ABSTRACT

Unusual and new bis- β -lactams substituted at the 2,7-position of the phenanthrene and 9,10-dihydrophenanthrene ring are prepared via Staudinger ketene-imine [2+2] cycloaddition reaction. This methodology is recognized as one of the most important and direct accesses route to β -lactams. The diastereoselectivity of cycloaddition processes is controlled by the structures of ketene and imine. The bulky group in the ketene and imine have a great influence on the stereochemical outcome of the β -lactam ring.

KEYWORDS

Bis β -lactams, Cycloaddition, Ketene, Unusual phenanthrene, Imine.

INTRODUCTION

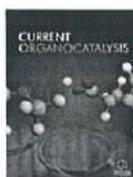
In our earlier studies, we have demonstrated synthesis and biological evaluation of numerous β -lactams as anticancer agents. The current investigation has identified a novel bis β -lactam that has a 2,7-disubstituted phenanthrene ring at the nitrogen. This method has two distinctive features i.e., indirect functionalization of the phenanthrene ring in two unusual positions at C₂ and C₇ centers using 9,10-dihydrophenanthrene as starting materials and preparation of novel bis β -lactams having sterically constraint polycyclic aromatic ring.

RESULTS AND DISCUSSION

We previously demonstrated bismuth nitrate-induced nitration of several aromatic compounds [1-5]. Reaction of 9,10-dihydrophenanthrene (**1**) with bismuth nitrate pentahydrate impregnated with clay produced a single 2,7-dinitro derivative (**2**) quantitatively under the influence of microwave irradiation. The dinitro product **2** was then attempted to transform to the corresponding diamino derivative (**3**) under the standard catalytic hydrogenation reaction over Pd/C in anhydrous ethanol at room temperature. Surprisingly an unusual aromatic compound corresponding to 2,7-dinitrophenanthrene derivative (**4**) was obtained as the minor product (Scheme-I, Table-1).

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Research Article

A Versatile Method for the Protection of Carbonyl Compounds by Camphor Sulfonic Acid

 Author(s): [Ram Naresh Yadav](#) and [Bimal Krishna Banik](#)*

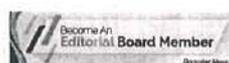
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Abstract

Background: Carbonyl groups are important functional groups and they play a key role in organic chemistry. This group needs to be protected in multistep synthesis against various reagents for a counter-reaction. The effort towards developing an efficient methodology for the protection of carbonyl functional group is always a demanding reaction. The protection of carbonyl compounds for inhibiting their chemical reactivity is an important operation in chemistry. In this paper, camphor sulfonic acid-catalysed protection of various carbonyl compounds is developed. This method is simple, environmentally friendly and yields products in high yields.

Method: Commercially available camphor sulfonic acid is used as organo-catalyst for the protection of carbonyl functionality. This catalyst is also employed for the protection of carbonyl functionality as thioacetal/mixed ketal in excellent yield. The newly synthesized compounds are characterized using ¹H NMR, ¹³C NMR and IR spectroscopy.

Result: A diverse carbonyl functional group is protected in excellent yield under mild reaction conditions.

Conclusion: We have developed an efficient organocatalysed protection method of carbonyl functionality applicable to wide range of substrates.

Keywords: 1,3-dioxolane, acetal, camphor sulfonic acid, ketal, organocatalysis, protection, thioacetalization.



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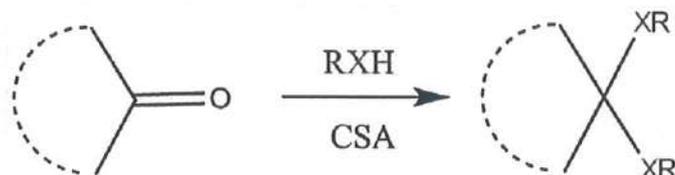
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Load Frequency Control of Two Area Power System Interconnected Network Using Neural Network under Varying Load Condition

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Abstract: In this paper, the dynamic response of load frequency control in an interconnected power system network is improved by using artificial intelligence and conventional PI and PID controller. The change in power studied on the load side according to time variation. In the proposed scheme control strategies developed using ANN and conventional controller for thermal-thermal and thermal-hydro power system. The effectiveness of control strategies indicate that the steady state error of frequencies and tie-line power are maintained in given tolerance of limitation. The performance of these controllers is simulated by using MATLAB/SIMULINK.

Keyword: Load frequency control (LFC) ANN controller, conventional (PI & PID) controller, Area control error.

I. INTRODUCTION

In power system operation and control needs the matching of total generation of power with total load demand associated with system losses produces deviations in the nominal system frequency and scheduled power interchange to the areas there for control of load frequency is essential for safe operation of power system so that the electric power quality is improved [1]. Load frequency control is defined as the regulation of power output of controllable generators within a given area in response to change in system frequency tie-line loading of are a relation of these to each other so as to maintain the scheduled system frequency and/or recognized interchange with other areas within pre-set limit [2]. Therefore control schemes are necessary that not only maintain the frequency as well as desired tie-line power flow but also attains zero steady-state error [3]. Among the different types of load frequency controller the most commonly used is the conventional proportional integral controller. It is very simple for implementation and gives better dynamic response but there performances depreciated when the complexity in the system increases due to the undesirable effect like fluctuating load demand and boiler dynamics [4-6]. To overcome this problem there is a need of controller, we use artificial intelligent controller in this respect. The silent features of these techniques to provide a model free description of control system and do not required model identification [7]. An ANN controller is advanced adaptive control configuration because the controller provides faster control than the other [8].

II. THE INVESTIGATED POWER SYSTEM

A. Modeling of Two Area System

The detailed block diagram modeling of two area thermal-thermal and hydro thermal power system for load frequency control investigated is shown in Fig 1 and Fig 2. An extended power system can be divided in to a number of load frequency control areas interconnected by means of tie lines, without loss of generality one can consider a two area case connected by single tie line. The control objectives are as follows:

- Each control area as far as possible should supply its own load demand and power transfer through tie line should be on mutual agreement.
- Both control areas should controllable to the frequency control.

In an isolated control area case the incremental power was accounted for by the rate of increase of stored kinetic energy and increase in area load caused by increase in frequency. Since a tie line transports power in or out of an area, this fact must be accounted for in the incremental power balance equation of each area [12-14].

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स्मृति कालीन भारतीय परिवार में पत्नी

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परिवार गृहस्थ जीवन का आधार होता है जीवनगत तथा समाजगत सभी कार्य एवं जिम्मेदारियाँ गृहस्थ आश्रम में ही पूरी होती हैं। इसीलिए परिवार का अपने उद्भव से ही अत्यधिक महत्व रहा है। प्रारम्भ में गृहपरिवार का प्रचलन था तथा ऐसे परिवार को अत्यधिक सम्मान भी प्राप्त था। किन्तु स्मृतियों में छोटे परिवार को महत्ता दी गई क्योंकि इससे धर्मवृद्धि होती है। वस्तुतः स्मृतिकाल में छोटे परिवारों का विकास हुआ। ऐसे परिवारों की धुरी स्त्री होती थी। इसकाल में चारों आश्रमों में गृहस्थाश्रम अत्यधिक श्रेष्ठ था तथा महत्त्वपूर्ण भी। इसी पर अन्य आश्रम आश्रित थे। समाज का संचालन भी इसी आश्रम पर ज्यादा आधारित था। यद्यपि इन तीनों आश्रमों में श्रेष्ठ बताते हुए कहा है—

गृहस्थः प्रत्यहं यस्मात्, तस्मान्ज्येष्ठाश्रमी गृहो। त्रयाणामाश्रमाणां तु, गृहस्थो योनिरुच्यते ॥ दशो 2.42
मनु ने भी कहा है कि गृहस्थ ही ज्ञान और अन्न से अन्य आश्रमों का पालन करता है। अतः वह सर्वश्रेष्ठ है। उनका कहना है कि जिस प्रकार सारे प्राणियों का आधार वायु है, उसी प्रकार सारे आश्रमों का आधार गृहस्थ है। विष्णु के अनुसार यज्ञ, तप, दान आदि सभी उत्कृष्ट कर्म गृहस्थ ही करते हैं। ऋषि, देवता, पितर सभी गृहस्थ से पालन पोषण की आशा रखते हैं, अतः गृहस्थ सर्वश्रेष्ठ है। गृहस्थाश्रम के कार्यों से ही सामाजिक स्थितियाँ बनती-बिगड़ती हैं। अतः यह आश्रम सामाजिक व्यवस्था का आधार था। ऐसे महत्त्वपूर्ण गृहस्थाश्रम की धुरी स्त्री थी। बिना इसके उस आश्रम का समुचित रूप से अनुपालन कठिन था। अतः उनका महत्त्व शास्त्रकारों द्वारा प्रतिपादित किया गया।

स्मृतिकारों ने श्रेष्ठ गृहस्थ के लक्षण बताते हुए कहा है कि धर्म, अर्थ तथा काम से सम्बद्ध सभी विशयों में पति-पत्नी एक विल होकर एक व्रत और एक वृत्ति को धारण कर कार्य करें। स्त्री और पुरुष के धर्म, अर्थ तथा काम रूपी त्रिवर्ग के लिए एक ही विधान है—

सम्यग् धर्मार्थ कामेषु, दम्पतिभ्यामहर्निशम्। एक विस्रतया भाव्यं, समान व्रत वृत्तितः ॥ व्यास, 2.18-19
स्मृतिकारों ने दया, लज्जा, क्षमा श्रद्धा, ज्ञान, योग, कृतज्ञता, सदाचार आदि गुणों को अच्छे गृहस्थ का लक्षण बताया उनके अनुसार इन गुणों से युक्त व्यक्ति श्रेष्ठ गृहस्थ है। गृहस्थ के इन लक्षणों तथा पति-पत्नी की सहयुक्तता के साथ किये जाने वाले कार्यों जिसमें स्त्री और पुरुष दोनों की बराबर की भागीदारी हो, तत्कालीन समाज में स्त्री की महत्ता को स्पष्ट करते हैं।

स्मृति कालीन सामाजिक व्यवस्था के तहत कुटुम्ब में स्त्रियों की गया स्थिति थी इसकी जानकारी स्मृतिकारों द्वारा स्त्रियों तथा पुरुष के लिए विधित कार्यों से प्राप्त होती है। स्त्रियों के कर्तव्यों की चर्चा करते हुए वसिष्ठ ने कहा है कि स्त्री प्रतिदिन अपने पति पुरुष और अतिथि को पहले भोजन करावे। उसके बाद स्वयं भोजन करे। वह अपने गुणों से पति को सन्तुष्ट रखे। पति पसयण रहे और धर्म मार्ग पर चले। गृहत्पराशर के अनुसार स्त्री का कार्य है कि वह घर के सभी कार्यों की देखभाल करे। चारों वर्षों की स्त्रियों का कलियुग में कर्तव्य है कि पति एवं द्विजों की सेवा करें। इससे ही धर्म की वृद्धि होती है। स्त्री प्रातः और सन्ध्या हवन करे। बच्चों और नौकरों को भोजन खिलाकर खावे। घर के दैनिक कार्य निबट्टा कर दिन में थोड़ा विश्राम करे और फिर दैनिक कार्यों में लग जाय। दिन में थोड़ा विश्राम अवश्य करे। वसिष्ठ के अनुसार पत्नी सुशील होनी चाहिए। वह पति को ही देवता समझे, मन वचन, कर्म से पति की सेवा करे। प्रतिदिन सास, श्वसुर के पैर छुए। घर की स्वच्छता करे। अपने शरीर को आभूषण, यन्त्र, मुष्पादि से अलंकृत करे। नृत्य, गीत, उत्सव तथा सभा आदि में अपने पति के साथ जाये। मनु ने कहा कि स्त्री को धन संग्रह, व्यय, वस्तुओं को ठीक व शुद्ध रखना, धार्मिक कृत्य करना, भोजन पकाना तथा घर के सभी कार्यों को करना चाहिए—

अर्थस्य संग्रहे वैना, व्यये वैव नियोजयेत्। शौचे धर्मोऽन्न पक्त्वां च, परिणाह्यस्य वेक्षणे ॥ मनु 0 1.41
उनके अनुसार स्त्रियों को इन छः दोषों से बचना चाहिए— मादक द्रव्यों का सेवन, दुष्ट लोगों के साथ रहना, पति से दूर रहना, दिन में सोना, इधर-उधर घूमना और दूसरे के घर में रहना—

पानं दुर्जन संसर्गः, पात्या च विरहोऽटनम्। स्वप्नोऽन्य गेहवासश्च, नारी-सम्बुध्णानि षट् ॥ मनु 0 9.13
पाणिनी ने पत्नी शब्द की व्युत्पत्ति की व्याख्या करके बताया है कि उसी को पत्नी कहा जाता है, जो यज्ञ और यज्ञ करने से फल प्राप्ति की भागी होती है। याज्ञवल्क्य ने स्त्री के कर्तव्य बताते हुए लिखा है कि स्त्रियों का कर्तव्य है कि वह घर की वस्तुओं को संभाल कर रखे, हंसमुख रहे, मितव्ययिता बरते, सास-श्वसुर का पैर छूकर प्रणाम करे और पति के मन के योग्य काम करे, सुन्दर ढंग से चले-फिरे तथा इन्द्रियों को वश में रखे। गृहस्पति ने लिखा है कि स्त्री को अपने पति एवं अन्य गुरुजनों को पूर्ण ही सोकर उठ जाना चाहिए। उनके खा लेने के बाद भोजन या व्यंजन लेना चाहिए तथा उनसे नीचे आसन पर बैठना चाहिए—

पूर्वास्थानं गुरुष्वर्वाकं, भोजन व्यंजन क्रिया।

जघन्यासन शायित्वं, कर्म स्त्रीणामुदाहृतम् ॥ बृह 0 25.10. बृह 0 25.10. बृह 0 25.10. बृह 0 25.10.

*असिस्टेंट प्रोफेसर, मानविकी एवं सामाजिक विज्ञान विभाग, इजीवियरिंग संकाय, वीर बहादुर सिंह पूर्वांचल विश्वविद्यालय, जौनपुर, उत्तर प्रदेश

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Redundancy Avoiding Algorithm in Network

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Abstract—Computer connects to the internet with single path, does not more reliable because many problems occur such as cable cutting device fail etc. For finding more reliable, we need two or more paths between switches. Multiple path between two system is insure that more reliable. But occurs a problem that is redundancy problem and creates a cycle. According to switch concept data move between two systems continuously, for this activity switch work very slow or shutdown. We can remove this problem using a bridge protocol data unit concept. In which easily finds the cycle in a network or not. If a cycle between switch devices so need to remove the cycle. We use new spanning tree avoiding algorithms which break the cycle and improve the efficiency of the network.

Index Terms—Root bridge, root port, redundant connection between switches, BPDU.

I. INTRODUCTION

The computer network communication devices and media perform a big role to deliver the data from source to destination. Two computers use many types of communication device is work efficiently and properly.

Computer network connected with single device and single path. It may occur some problems such as device or path fails then network will be stopped or fail. So we have established two or more path from source to destination. If one path fails then use alternate path. But multiple paths make a cycle and create a problem such as shutdown the network. For removing this cycle we use redundancy avoiding algorithm.

A spanning tree is a subset of Graph G, which has all the vertices covered with minimum possible number of edges. Spanning tree does not have cycles and it cannot be disconnected. By this definition we insure that every connected & undirected Graph G has at least one spanning tree. A disconnected graph does not have any spanning tree, as it cannot span to all its vertices.

We found three spanning trees off one complete graph. A complete undirected graph can have maximum $n(n-1)$ number of spanning trees, where n is number of nodes. Another way we use redundancy avoiding algorithm which is different from spanning tree avoiding algorithm, and take minimum time to avoid the redundancy in a network.

II. PROPERTIES OF SPANNING TREE

General properties of spanning tree, we now understand

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that one graph can have more than one spanning trees. The few properties of spanning tree are given below for a connected graph G (V, E). A connected graph G can have more than one spanning tree. All possible spanning trees of graph G have same number of edges and vertices. Spanning tree does not have any cycle or loops, remove one edge from spanning tree will make the graph disconnected i.e. Spanning tree is minimally connected. Adding one edge to a spanning tree will create a circuit or loop i.e. spanning tree is maximally acyclic. Mathematical properties of spanning tree Spanning tree has $n-1$ edges, where n is number of nodes or vertices from a complete graph, by removing maximum $e-n+1$ edges, we can construct a spanning tree. A complete graph can have maximum $n(n-1)$ number of spanning trees. So we can conclude here that spanning trees are subset of a connected graph G.

III. APPLICATION OF SPANNING TREE

Spanning tree is basically used to find minimum paths to connect all nodes in a graph. Common application of spanning trees is computer network routing protocol, cluster analysis. Minimum spanning tree (MST) in a weighted graph, a minimum spanning tree is a spanning tree that has minimum weight that all other spanning trees of the same graph. For spanning tree we shall learn about two most important spanning tree algorithms, Kruskal's algorithm and Prim's algorithm both are greedy algorithms.

IV. NEED OF IDEAL NETWORK OF SPANNING TREE

Computer are connected with a single path between two switches, there is no problem, problem occur when the single path is break, all connection is break. Then we make another link between two switches. Reliability increase but connection was redundant that is a problem which is slow down the switches .then we need of ideal network of spanning tree [3].

V. IDEAL NETWORK OF SPANNING TREE

If you have 50, 100 switches then not need of spanning tree concept. If 100 or 200 switches are available then spanning tree concept is needed.

In ideal network design user has more option to access the server, here two paths is available for every user primary path and redundant path. If primary connection is fail then redundant path make a connection [7].

VI. SOLUTION FOR THE SPANNING TREE NETWORK

We use the redundancy concept which makes reliable

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Port Security Mechanism on Switch

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Abstract— Upgrade the security concept on the switch, we apply some code and general concept of switch security. By reduce the possibility of security problem, simply ignore the invalid device and improve the switch performance.

Keywords— hub, collision domain, switch, bridge.

I. INTRODUCTION

This Hub is use shared communication medium which is the reason of collision domain because medium are shared by all devices. We want to remove the collision we use another electronic device bridge. That processing decision is handling by operating system, By using this concept processing is slowdown, we use another device switch is use which is better than hub, bridge because both are not used shared medium, it provide dedicated link to all device. Any data are come to near to the switch. Then recently take decision and forward. It is not based on operating system. Decision making handle by ASIC special device .all node are joined to switch and take entry in CAM table. if any node want to communicate to another node then first entry in CAM table after that switch find the packet, then broadcast to all node, only left the source node which already connected and device give the reply to switch means that is new just connected. Which device are Not give the reply means that is already connected or already entry in CAM table by this process switch find the new node, when node that is connected to switch. On this a security concept is very necessary that which node is valid or invalid.

Any node are want to connect to with switch then simply switch connect all type of node .that is not able to categories that which is valid are invalid, for recognized valid port switch port is used port security tricky mechanism.

If you want see an about of any switch you run the 'switch run show command', then display that the specific port will enabled and disable port is shut down. How to show how many system are connected at that port at a time. another command is available which show all information of switch such as all information of MAC address which is connected to switch ,types of nodes ,on which port and how many time to

live. together port security we also need switch security because without switch you cannot able to secure port security, in series of switch security always escape the switch password use console cable at align time does not display any attractive message and unused port always should be blocked by doing this we find port security in network.

II. LITERATURE REVIEW

Hub is an electronic device on which limited number of computer are connected on a single cooper wire means hub provide shared communication between devices, shared communications means available mbps are divided to all connected devices into equal mbps.

When two are more devices are used shared communication medium then all shared communication device are the part of collision domain. We are going to understand the concept collision domain by example we see the physical structure of hub ,physical structure inside the hub.

Hub backbone is a copper wire, on the copper wire all devices are connected, if hub bandwidth is 100 mbps and 5 computers are connected. All computer find 20 mbps speed .these sharing are called shared medium.

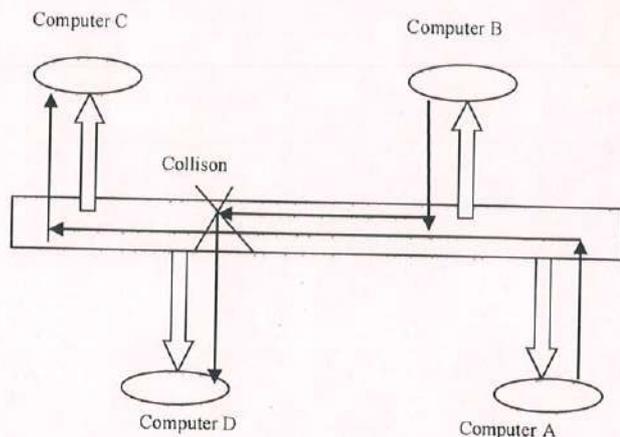


Fig. 1. Collision on Hub

Color Sorting Based on Internet of Things

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Abstract— Sorting of products is a very difficult industrial process. Continuous manual sorting creates consistency issues. This paper describes a working prototype designed for automatic sorting of objects based on the color. TCS230 sensor was used to detect the color of the product and the Arduino microcontroller was used to control the overall process. The identification of the color is based on the frequency analysis of the output of TCS230 sensor. Two conveyor belts were used, each controlled by separate DC motors. The first belt is for placing the product to be analyzed by the color sensor, and the second belt is for moving the container, having separated compartments, in order to separate the products. The experimental results promise that the prototype will fulfill the needs for higher production and precise quality in the field of automation.

Keywords—TCS230, Color Sensor, Color Sorting, DC motor

I. INTRODUCTION

The color sorting machine using Arduino is a fascinating and renowned project for techies, who would like to combine Electronics, Machine Building and Programming. The Color Sorting Machines is used for sorting mainly RGB colors. This color sorting machine separates different colored objects and classifies them in to respective containers. The color sorting machine is fully automated with the help of Arduino. The main purpose of the color sorting is used on production lines in bulk food processing and other industries. The color sorter separates the items by their colors. The color sorter is mostly used for color sorting in different industries such as grain industry, food industry, demand and mining industry [1].

II. LITERATURE SURVEY

In recent year, there are many implementation is going on for the industries for food packing. Many researchers are implementing to optimize efficiency of the Color sorting machine. Practically we can implement the in the industries to optimize the better result and to improve the technology and provide less effort human [3].

III. MATERIALS AND METHODOLOGY

The proposed system is designed for automatic sorting of Red or Green or Black colored products. The prototype consists of two DC motors, two conveyor belt, a PIC and a

color sensing circuit using TCS230 . DC motors are used to control the conveyor belts. After integrating the programmed PIC and the TCS230 circuitry with the structure of the model, we measure the frequency of signals corresponding to each color by observing them on a CRO[4][8]. Based on this study the timer delay value is adjusted by reprogramming the Arduino. The time required for the product to reach the corresponding container in the separator placed on second conveyor belt is also considered. L293D Hybrid IC is used to drive the second motor both in clock wise and anti-clock wise direction, which provides the to and fro movement of the container of dimensions 9cm x 30cm x 7cm (Width x Length x Height)[5][7]. Separators were used to create compartments of equal sizes meant for collecting objects of same color. The end section consist of a DC motor (5.5V, 30rpm), which is used to control the movement of the second conveyor belt in order to position the separator according to the sensor output[6].

IV. HARDWARE IMPLEMENTATION AND WORKING

We prepared a Color Sorting Machine using Arduino and different hardware component like The hardware implementation of this project needs following component - Arduino, Color Sensor, Servo Motor, Bread Board, Jumper Wires[2].

The Hardware implementation of proposed project work is shown in figure 1.

HOME AUTOMATION USING NODE MCU AND ANDROID APPLICATION

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Abstract: The purpose of this paper is creating a mobile app on a smart phone device so that the user can control electronic devices form that application. The Home Automation is a wireless home automation system that is supposed to be implemented in existing home environments, without any changes in the infrastructure. Home Automation let the user to control the home from his or her smart phone and assign actions that should happen depending on time or other sensor readings such as light and temperature from any device in the Home Automation network. This research paper involves the design and construction of an individual control home automation system using Node MCU. Home automation is the automatic or semi-automatic control and monitoring of household appliances and residential house features like Tube light, Fan and even the Room Heater. This research paper also consists of a Door bell which automatically rings when any obstacle comes in front of the IR sensor.

Keywords: Home Automation, Smart Home, Smart home appliances

1. INTRODUCTION

Generally, when we go out the house we switch off the light or the electrical equipment to avoid accidents such as short circuit, firing, etc. but sometimes we forget to switch them off, we have to come back home to do so. This is wastage of time and creates lots of chaos and tension. So to avoid such kind of situation the latest technology already came world wide is smart home technology. Smart home is one in which all electrical equipment around the home is technologically smart or intelligent or automated with highly advanced automatic system for security in other system. Smart home is useful for everyone and can also be used in everyday life at home. Smart home is consisting of three parts- network, controlling device and Home automation.

Network can be wired or wireless. It is used for connecting the automation to controlling device. Controlling devices can be used for managing the system. Home automation are the devices which control the physical environment.

2. LITERATURE SURVEY

In recent year, there are many implementation is going for the smart home system for residential building to make it more efficient day by day.

Many researchers are implementing to optimize efficiency of the Home automation system; Nowadays, mostly VB (visual basic) and PLCC are used. Practically we can implement the smart home to optimize the better result and to improve the technology and provide humans with more comfort and less consumption of electricity.

Chronic Kidney Disease: A Predictive model using Decision Tree

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Abstract

Data mining may be utilized in healthcare industry in actual fact to “mined” clinical information to get hidden information for intelligent and effective decision making. Advanced data processing techniques in discovery of hidden patterns and relationships may be a fruitful as remedy to the present state of affairs, principally deals with Prediction of Chronic urinary organ illness. Information covers several attributes like blood, urine, cardiovascular disease check, and external symptoms applied to predict chronic urinary organ illness. For getting higher result several parameters are accustomed interaction between measured parameters and that is get from data processing approach, processing and information transformation of the survival of the patient. Decision Tree algorithms are used for extracting information within the kind of a collection of decision rules. The decision-making algorithm is employed to predict the survival of the CKD patient and additionally who is new and unseen. For the medical purpose more important parameters are known. During this analysis paper concept is introduced check and apply the information assortment from UCI Machine Learning Repository Chronic_Kidney_Disease information Set_files. The procedure results are evaluated during this research paper with medical significance.

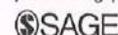
Keywords: Chronic kidney disease, data mining, Clinical information, data Transformations, Decision-making algorithm

1. INTRODUCTION

Worldwide out of total population, 10% are affected by chronic kidney disease (CKD) and since of they don't have reasonable medical access thus millions die annually because of economic condition [1]. In China and India, it's calculable that range of patients of kidney failure can increase in developing countries, wherever the amount of unbalanced older folks are increasing extremely [2]. In several low and middle-income countries, because of elevated charge of healing with dialysis or urinary organ transplantation creates a wealth load for the bulk of people. In alternative countries, several majority people cannot afford the treatment at all, thus within the result the death of over one million people from untreated kidney failure annually [3]. Chronic

Prediction of benign and malignant breast cancer using data mining techniques

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Vikas Chaurasia¹, Saurabh Pal¹ and BB Tiwari²

Abstract

Breast cancer is the second most leading cancer occurring in women compared to all other cancers. Around 1.1 million cases were recorded in 2004. Observed rates of this cancer increase with industrialization and urbanization and also with facilities for early detection. It remains much more common in high-income countries but is now increasing rapidly in middle- and low-income countries including within Africa, much of Asia, and Latin America. Breast cancer is fatal in under half of all cases and is the leading cause of death from cancer in women, accounting for 16% of all cancer deaths worldwide. The objective of this research paper is to present a report on breast cancer where we took advantage of those available technological advancements to develop prediction models for breast cancer survivability. We used three popular data mining algorithms (Naïve Bayes, RBF Network, J48) to develop the prediction models using a large dataset (683 breast cancer cases). We also used 10-fold cross-validation methods to measure the unbiased estimate of the three prediction models for performance comparison purposes. The results (based on average accuracy Breast Cancer dataset) indicated that the Naïve Bayes is the best predictor with 97.36% accuracy on the holdout sample (this prediction accuracy is better than any reported in the literature), RBF Network came out to be the second with 96.77% accuracy, J48 came out third with 93.41% accuracy.

Keywords

Breast cancer, data mining, Naïve Bayes, RBF Network, J48

Received 30 September 2017; accepted 4 January 2018

Introduction

The number and the size of databases recording medical data are increasing rapidly. Medical data, produced from measurements, examinations, prescriptions, etc., are stored in different databases on a continuous basis. This enormous amount of data exceeds the ability of traditional methods to analyze and search for interesting patterns and information that is hidden in them. Therefore, new techniques and tools for discovering useful information in these data depositories are becoming more demanding.¹ Analyzing these data with new analytical methods in order to find interesting patterns and hidden knowledge is the first step in extending the traditional function of these data sources.

cells. Although cells in each part of the body may look and work differently, most repair and reproduce themselves in the same way. Normally, cells divide in an orderly and controlled way. But if for some reason the process gets out of control, the cells carry on dividing and develop into a lump called a tumour. Breast tumours are usually caused by an overgrowth of the cells lining the breast ducts. They can be either benign or malignant. In a benign tumour, the cells grow abnormally and form a lump. But they do not

Breast cancer

The organs and tissues of the body are made up of tiny building blocks called cells. Cancer is a disease of these

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Effect of economic growth initiatives on regional economies: a study in the Indian context

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Abstract: In the present context when India is preparing to witness huge economic expansion through numbers of development programs and initiatives, it becomes important to evaluate them on the basis of their usefulness, structure and evenness in development by analysing different studies in the same field. An attempt has been made to find suitable approaches required for economic development. Increase in regional disparity in the phase of economical development makes the central issue of the paper and the study have been done to find viable methods to minimise it.

Keywords: economic development; entrepreneurial development; 'Make in India'; Indian economic development initiatives; India.

Reference to this paper should be made as follows: Tripathi, V., Singh, A.P. and Roy, R. (2018) 'Effect of economic growth initiatives on regional economies: a study in the Indian context'. *Int. J. Entrepreneurship and Innovation Management*, Vol. 22, No. 3, pp.286-297.

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Original Research Article

Assessing the Mental Health And Quality Of Life Of Transgenders: The Role Of Perceived Discrimination And Harassment

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ABSTRACT

Background: The social response towards transgenders in India is very discriminatory and prejudiced in general. They are experiencing discrimination in all domains of their personal and social life. They are even deprived of in their own families. Discrimination is believed to be associated with worse quality of life. The aim of this study was to explore the relationship between perceived discrimination and harassment with mental health and further quality of life in transgenders population.

Methods: The sample consists 60 transgenders (30 'Gurus' or Leaders and 30 are the 'Chellas' or Student) belongs to Varanasi (U.P.) and Chhapra (Bihar). A non-random purposive sampling including the snowball technique was used to collect the data. The age range of the respondents are 18 to 55 years. A questionnaire consists of self-developed scale of mental health, quality of life, discrimination and harassment were administered. A consent form was filled from participants before the administration of the questionnaire.

Results: The results show that (a) 'Guru' (Leaders) were perceived more discrimination and less harassment in comparison to their 'Chellas' (Students). Further, it was also found that (b) 'Guru' (Leaders) have perceived poor mental health (more negative affect, anxiety, depression and stress) and quality of life (less life satisfaction, and but more social acceptance) in comparison to their 'Chellas' (Students). (c) Perceived discrimination and harassment were negatively related to mental health status and quality of life. (d) Perceived discrimination was accounted for maximum variation in mental health (61.80%) while, component wise, perceived discrimination was accounted for maximum variation in anxiety (75.20%) and depression (68.50%) whereas, perceived harassment was accounted for maximum variation in negative affect or feelings (67.20 %) and stress (70.30 %). On the other hand, perceived discrimination was accounted for maximum variation in predicting quality of life (63.70%). Component wise, perceived discrimination was accounted for maximum variation in life satisfaction (84.20%) and socio-economic status (57.50%) whereas, perceived harassment was accounted for maximum variation in social acceptance (55.30 %) and (e) Mental health partially mediated in the relationship between perceived discrimination and harassment and quality of life. Results were discussed in light of previous researches and theories of this field.

Conclusion: Since, transgenders are regarded as the most disgraceful creature in this world. They are denied due to their status. The contribution of the study is important for understanding the pain and psychology of transgenders and aware others to include them in the mainstream society.

Keywords: Discrimination; Harassment, Mental Health, Quality of Life, Transgenders Individuals.

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HOME AUTOMATION USING NODE MCU AND ANDROID APPLICATION

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Abstract: The purpose of this paper is creating a mobile app on a smart phone device so that the user can control electronic devices from that application. The Home Automation is a wireless home automation system that is supposed to be implemented in existing home environments, without any changes in the infrastructure. Home Automation let the user to control the home from his or her smart phone and assign actions that should happen depending on time or other sensor readings such as light and temperature from any device in the Home Automation network. This research paper involves the design and construction of an individual control home automation system using Node MCU. Home automation is the automatic or semi-automatic control and monitoring of household appliances and residential house features like Tube light, Fan and even the Room Heater. This research paper also consists of a Door bell which automatically rings when any obstacle comes in front of the IR sensor.

Keywords: Home Automation, Smart Home, Smart home appliances

1. INTRODUCTION

Generally, when we go out the house we switch off the light or the electrical equipment to avoid accidents such as short circuit, firing, etc. but sometimes we forget to switch them off, we have to come back home to do so. This is wastage of time and creates lots of chaos and tension. So to avoid such kind of situation the latest technology already came world wide is smart home technology. Smart home is one in which all electrical equipment around the home is technologically smart or intelligent or automated with highly advanced automatic system for security in other system. Smart home is useful for everyone and can also be used in everyday life at home. Smart home is consisting of three parts- network, controlling device and Home automation.

Network can be wired or wireless. It is used for connecting the automation to controlling device. Controlling devices can be used for managing the system. Home automation are the devices which control the physical environment.

2. LITERATURE SURVEY

In recent year, there are many implementation is going for the smart home system for residential building to make it more efficient day by day.

Many researchers are implementing to optimize efficiency of the Home automation system; Nowadays, mostly VB (visual basic) and PLCC are used. Practically we can implement the smart home to optimize the better result and to improve the technology and provide humans with more comfort and less consumption of electricity.

INTERNET OF THINGS (IoT): A REVIEW OF SECURITY ISSUES

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ABSTRACT:

Now-a-days, a new generation of computing technology i.e. Internet of Things (IoT) is taking place. IOT is a network of intelligent things, connected together using the concept of cloud to make our lives much easier and safer and to reduce our impact on the environment. Every organization such as companies and civil institutions needs up-to-date information about people. In this regard, most establishments either use of websites, emails or notice boards, are performed. However, in most of countries internet access is available to people on systems and their mobile devices, so that the transferring information can be much easier and less costly through the internet. IoT uses internet to establish connection between things and user, hence security concern of that communication channel will become most important. Here we will discuss about security issues, arise in IoT communication.

KEYWORDS:

Arduino, RaspaberryPi, Cryptography, PKI.

1.INTRODUCTION:

Because of no any common definition for the IoT, the concept used behind this is that everyday objects may have the capabilities of identifying, sensing, networking and processing that will allow them to communicate with other devices and services over the Internet to obtain some useful objectives. Benefits from IoT will allow improving the services as perceived by the users, for example saving energy, enhancing comfort, getting better healthcare, and increased independence. In recent years, use of various sensing devices to monitor human activities and health has gained great research interest. Especially, sensor network applications in healthcare have the potential to make major impacts. These sensor networks can be used for real-time, continuous vital monitoring of patient status and providing immediate alerts of changes. The data can also be relayed to the hospital or correlate with patient records and soon. Human lives are directly involved in these applications. On the other hand, IoT raises new technical and ethical challenges. All wireless systems have some inherent technical vulnerabilities and limitations. Many of the sensor network applications used in healthcare heavily rely on technologies that can pose security threats. So, security and privacy are the most challenging issues raised in IoT.

Along with the involvement of computer as an embedded part of daily life, the need of some automated tools for protecting files and other information stored on the computer was felt. Introduction of distributed systems and the use of networks and communications facilities for carrying data between terminal user and computer also congregated the requirement of security. Security is required to protect data while communicating.

In this digital world of IoT, security can be achieved by cryptography. Cryptography is a science that applies complex mathematics and logic to design strong encryption methods. Cryptography is the art or science encompassing the principles and methods of transforming an intelligible message into one that is unintelligible (noise), and then retransforming that message back to its original form. Cryptography helps in storing sensitive information and transmitting it securely over insecure media (like Internet). But, how cryptography can be used to ensure privacy in Internet of Things (IoT)? The answer could be found by the following study.

2. BASIC OF CRYPTOGRAPHY

Cryptography is "Secret (crypto-) writing (-graphy)". Cryptography is the science of using mathematics to encrypt (transform) and decrypt (retransform) data. A cryptographic algorithm, or cipher, is a mathematical function used in the encryption and decryption process. A cryptographic algorithm requires a key—a word, a number, or phrase—to encrypt the plaintext. Any given plaintext may be encrypted to different

ciphertext with different keys. This process can be written as:

$$C = E_k(P)$$

$$P = D_k(C)$$

where P = plaintext, C = ciphertext, E = the encryption method, D = the decryption method, and k = the key.

The strength of the cryptographic algorithm and the secrecy of the key determine the security of encrypted data.

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A SECURITY APPROACH TO MANAGE ORGANIZATIONAL CLOUDS UNDER DOS ATTACK

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Abstract- Cloud computing is the fastest growing technology, which are adopted by many companies just like Amazon. But there are various security issues in cloud computing and one of them is DOS. It can effect organizations behavior and successful execution, depending on cloud for their business. This paper explains DOS attack, its effect in cloud computing and things needs to be considered while selecting defense mechanisms for DOS.

Keywords – DOS, AWS, EC2, Wireshark, OpenStack

1. INTRODUCTION

In 90's beginning of the global use of Internet, the fashion of a-lot-of computers accessing to one big server came back again. At that time web servers were required with plenty of power to hold the requests made from the Internet. From that time to current, more services are offered on Internet as well as more storage are need the users for their services. At the end of the 90's, normally all data centres were using less than 10% of their capabilities because they wanted to reserve the rest for the occasional peaks, at that time Amazon made a great effort to solve this problem by adding capabilities by demand to the users, one of the concepts of Cloud Computing, fast and easy. At 1999 Salesforce.com began to delivery services to enterprises by their own website and pioneered the concept of software as a service. In 2002 Amazon launched Amazon Web Services (AWS), a suite that includes storage, computation and others services. In 2006 Amazon launched Elastic Compute Cloud (EC2) to small companies and run their own computer applications in the cloud. In 2008, Eucalyptus was launched, being the first open source AWS API compatible platform for deploying private clouds. In 2009 Google began to offer enterprise applications based in browser as Google Apps. Cloud Computing is a general term for anything that involves delivering hosted services over the Internet. It is being and forecasted that more and more users will rent computing as a service, moving the processing power and storage to centralized infrastructures rather than located in client hardware. This is already enabling start-ups and other companies to start web services without having to invest upfront in dedicated infrastructure. However, a major barrier for cloud adoption is real and perceived lack of security. Even though with multiple number of advantages, cloud is under high risk of attack and one such attack that can cause a major breach in security is DOS or DDOS attack.

2. OBJECTIVE OF THE RESEARCH PAPER

Since 2007, Cloud Computing has become hot issue; many companies began to attempt to use Cloud Computing services. The Cloud Computing has grown as a promising business concept as well as one of the fastest growing segments of IT industry in the last few years. The typical Cloud Computing service are Amazon's EC2 and Google's Google App Engine, they use the Internet to connect to external users, and take the large number of software and IT infrastructure as a service provided to users However the popularity of Cloud Computing is increasing day by day but there are some challenges that are faced by it. One of the main challenges of Cloud is security. With the fast growing of Cloud Computing technology, Data security becomes more and more important in it. In evaluating whether to move to Cloud Computing, it is important to compare benefits and also risks of it. From past few years, DDOS attacks have been placed first on the list of cloud attacks. DDOS can have serious consequences, especially on the companies dependent on the internet for their business. Thus, security and other existed issues in the cloud cause cloud clients need more time to think about moving to cloud environments.

3. METHODOLOGY

The objectives defined in the preceding section are achieved through the accomplishment of the following tasks:

- A thorough review of literature related to cloud computing and DOS attack.
- Analysis of detailed information and knowledge of the Cloud Computing, Virtualization and OpenStack which has been used in the implementation.

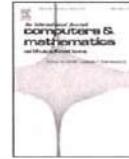
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On closed form solutions of (2+1)-breaking soliton system by similarity transformations method



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ABSTRACT

In the present research, similarity transformation method via Lie-group theory is proposed to seek some more exact closed form solutions of the (2+1)-dimensional breaking soliton system. The system describes the interactions of the Riemann wave along y-axis and long wave along x-axis. Some explicit solutions of breaking soliton system are attained with appropriate choices of the arbitrary functions and making use of arbitrary constants involved in the infinitesimals. In order to obtain physically meaningful solutions, numerical simulation is performed. On the basis of graphical representation, the physical analysis of solutions reveals into multi-solitons, periodic, quadratic, asymptotic and stationary profiles.

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1. Introduction

1.1. Scope

It is well known that various complex phenomena in real life are governed by nonlinear partial differential equations (PDEs). Substantially these PDEs can be associated to fluid dynamics, nonlinear optics, chemistry, plasma physics and some others related fields. In this research, we generate some more exact closed form solutions of (2 + 1)-dimensional Breaking Soliton (BS) system. Closed form solutions have direct relevance for describing the physical behavior of the system associated with PDE. Furthermore, it is imperative to cast some brief views about solitons and historical background of our illustrated system of PDEs.

In soliton theory, nonlinear wave is the most important research area. A soliton is a self-reinforcing solitary wave packet which preserves its shape when it propagates at a constant velocity. Consequently, the cancellation of nonlinear and dispersive effects in the medium are solitons. The credit for first observation in 1834 of solitons goes to John Scott Russell when he was observing solitary wave in the Union Canal of Scotland. Later in 1965, Zabusky and Kruskal [1] studied the well known (1 + 1)-Korteweg–de Vries (KdV) equation, and made some remarks on the interaction of solitons in a collisionless plasma. They concluded that the solitary wave pulse or solitons pass through one another without losing their identity.

The basic objective of this research is to introduce similarity transformation method (STM) to obtain closed form solutions of the following BS system as

$$u_t + b u_{xy} + 4b uv_x + 4b u_x v = 0, \quad (1.1a)$$

$$v_x = u_y, \quad (1.1b)$$

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On Lie symmetries and soliton solutions of $(2 + 1)$ -dimensional Bogoyavlenskii equations

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Raj Kumar

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Abstract The present article is devoted to find some invariant solutions of the $(2 + 1)$ -dimensional Bogoyavlenskii equations using similarity transformations method. The system describes $(2 + 1)$ -dimensional interaction of a Riemann wave propagating along y -axis with a long wave along x -axis. All possible vector fields, commutative relations and symmetry reductions are obtained by using invariance property of Lie group. Meanwhile, the method reduces the number of independent variables by one, which leads to the reduction of Bogoyavlenskii equations into a system of ordinary differential equations. The system so obtained is solved under some parametric restrictions and provides invariant solutions. The derived solutions are much efficient to explain the several physical properties depending upon various existing arbitrary constants and functions. Moreover, some of them are more general than previously established results (Peng and Shen in *Pramana*

67:449–456, 2006; Malik et al. in *Comput Math Appl* 64:2850–2859, 2012; Zahran and Khater in *Appl Math Model* 40:1769–1775, 2016; Zayed and Al-Nowehy in *Opt Quant Electron* 49(359):1–23, 2017). In order to provide rich physical structures, the solutions are supplemented by numerical simulation, which yield some positons, negatons, kinks, wavefront, multisoliton and asymptotic nature.

Keywords Bogoyavlenskii equations · Lie group theory · Symmetry reductions · Invariant solutions

1 Introduction

1.1 Scope

Nonlinear waves become intensively interesting since nonlinear phenomena has direct relevance and wide applications in real-life situations. These nonlinear phenomena can be described through nonlinear partial differential equations (NPDEs) [1–32]. Such complex scientific phenomena frequently occurring in some physical systems like mathematical physics, chemistry, biology, fluid mechanics, plasma physics and some other real-life problems can be modeled by these NPDEs. The exact solutions provide the precise information of the physical systems described by these PDEs. During past five decades, a number of efficient techniques have been developed to obtain mathematical solutions of PDEs for their reliable treat-

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PERFORMANCE ESTIMATION OF O-IDMA WITH OPTIMUM DESIGN
CONVOLUTIONAL CODES USING PRIME INTER-LEAVERS

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Abstract- Convolutional codes are mainly used in communication systems for error correction purpose. The coded bits depend on design of convolutional coder circuit elements which are basically shift registers and adders. By varying the possible feedback connection of convolutional encoder hardware design, various design topologies are generated which produces different code-words according to design topology. In present article O-IDMA which is supreme technology for mobile communications has been observed qualitatively in terms of BER for different design topologies of encoder. For analysis purpose prime inter-leaver is taken into consideration.

Keywords- O-IDMA, Network topology, Hamming distance, Prime Inter-leaver, LLR (Long likely hood ratio)

1. INTRODUCTION

The multiple access methods are an essential communicational requirements in a multi-user environment. Multiple access techniques are required to meet the demand for high speed and large user handling capability of communication optical networks, which permit multiple user to share the fiber bandwidth. O-IDMA (optical interleave division multiple access) made its attention due to its probable applications for LAN optical networks [1-3]. Inter-leaver is usually working a key component in turbo codes, due to the fact that iterative method of the turbo coding will use interleaved version of information iteratively to produce high coding gain.

A very powerful and widely used a variety of codes, called convolutional codes, which are used in a variety of system including todays standard wireless, optical and in satellite communication. Convolutional error correcting or channel coding is used to improve the efficiency and accuracy of information transmitted. Convolutional codes are beautiful because they are intuitive, one can know them in many different ways, and there is a way to decode them so as to recover the mathematically most possible message from among the set of all possible transmitted message [4-5]. Other major reason for this is the possibility of achieving real time decoding without visible information losses thanks to the well known soft input Viterbi Algorithm.

In present paper, the convolutional coder of fixed constraint lengths with varying network topology is designed and connected in the IDMA system [6]. Varying the network topology specifies that different possible combinations of shift registers and adders are used in encoder to generate more number of uncorrelated code words and produces larger hamming distance, which increases the error detection and correction ability of codes. Constraint length and network topology are the important parameter of the convolutional encoder. The longer the constraint length, the larger the number of parity bits that are subjective by any given message bit. Because the parity bits are the only bits sent over the channel, a larger constraint length generally implies a greater flexibility to bit errors [7]. The trade - off, though, is that it will take significantly larger to decode codes of long constraint length. So one can not

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Chronic Kidney Disease: A Predictive model using Decision Tree

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Abstract

Data mining may be utilized in healthcare industry in actual fact to "mined" clinical information to get hidden information for intelligent and effective decision making. Advanced data processing techniques in discovery of hidden patterns and relationships may be a fruitful as remedy to the present state of affairs, principally deals with Prediction of Chronic urinary organ illness. Information covers several attributes like blood, urine, cardiovascular disease check, and external symptoms applied to predict chronic urinary organ illness. For getting higher result several parameters are accustomed interaction between measured parameters and that is get from data processing approach, processing and information transformation of the survival of the patient. Decision Tree algorithms are used for extracting information within the kind of a collection of decision rules. The decision-making algorithm is employed to predict the survival of the CKD patient and additionally who is new and unseen. For the medical purpose more important parameters are known. During this analysis paper concept is introduced check and apply the information assortment from UCI Machine Learning Repository Chronic_Kidney_Disease information Set_files. The procedure results are evaluated during this research paper with medical significance.

Keywords: Chronic kidney disease, data mining, Clinical information, data Transformations, Decision-making algorithm

1. INTRODUCTION

Worldwide out of total population, 10% are affected by chronic kidney disease (CKD) and since of they don't have reasonable medical access thus millions die annually because of economic condition [1]. In China and India, it's calculable that range of patients of kidney failure can increase in developing countries, wherever the amount of unbalanced older folks are increasing extremely [2]. In several low and middle-income countries, because of elevated charge of healing with dialysis or urinary organ transplantation creates a wealth load for the bulk of people. In alternative countries, several majority people cannot afford the treatment at all, thus within the result the death of over one million people from untreated kidney failure annually [3]. Chronic

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Network Topology Variation of Convolutional Coders on Performance of O-IDMA with Random Interleaver

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Abstract Optical IDMA is a promising technology used in recent mobile communication. Different kind of interleaver are used in this technique to improve the quality communication. Convolutional coders are used in any communication system is basically to enhance the error correcting capability of communication. A large number of network connections are possible for a fixed hardware component convolutional encoder. By varying the network topology of convolutional encoder that is the feedback path, and hence the hamming distance of generated code-words are changed which effect the bit error rate. In the present work we have used the different possible combinations of network topologies for fixed constraint length convolutional encoders and observed their effect on performance of O-IDMA system. In present case we have used random inter-leavers for analysis purpose.

Keywords- O-IDMA, Network topology, Hamming distance, Random Interleaver, Constraint Length

1. INTRODUCTION

The multiple access methods are an essential communication requirements in a multi-user environment. Multiple access techniques are required to meet the demand for high speed and large user handling capability of communication optical networks, which permit multiple user to share the fiber bandwidth. O-IDMA (optical interleaved division multiple access) made its attention due to its probable applications for LAN optical networks.

Interleaver is usually working a key component in turbo codes, due to the fact that iterative method of the turbo coding will use interleaved version of information iteratively to produce high coding gain.

A very powerful and widely used a variety of codes, called convolutional codes, which are used in a variety of system including today's standard wireless, optical and in satellite communication. Convolutional error correcting or channel coding is used to improve the efficiency and accuracy of information transmitted. Convolutional codes are beautiful because they are intuitive, one can know them in many different ways, and there is a way to decode them so as to recover the mathematically most possible message from among the set of all possible transmitted message [4-5]. Other major reason for this is the possibility of achieving real time decoding without visible information losses thanks to the well known soft input Viterbi Algorithm.

In present paper, the convolutional coder of fixed constraint lengths with varying network topology is designed and connected in the IDMA system. In this paper, the network

topology are the important parameter of the convolutional encoder. The longer the constraint length, the larger the number of parity bits that are subjective by any given message bit. Because the parity bits are the only bits sent over the channel, a larger constraint length generally implies a greater flexibility to bit errors [7]. The trade-off, though, is that it will take significantly larger to decode codes of long constraint length. So one can not increase the constraint length at random and expect fast decoding.

In this article, varying the network topology and fixed the constraint length makes system more efficient against the larger number of users and we get reduction in bit error rate (BER).

2. OPTICAL IDMA SYSTEM

The block diagram of optical IDMA system shown in figure-1, having k different users, proposing single path of optical window 1550 nm. It all users having converted in fixed code length, which is assumed to be low rate [8-9]. The chip is interleaved by a chip level interleaver. After transmitting through the channel, the bits are seen at the receiver side.

In receiver section, after chip matched filtering, the received signal from the k users. In the receiver side for multiuser detection we have used elementary signal estimator, APP and SDECs having variable iterative mechanisms. The produced LLR are further classified in two ways, one which is produced by PSE and another which is generated by DEC. The concept and ethics involved in CBC has shown in, the function of PSEP and APP, function are based on near

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Transformational leadership and turnover

Mediating effects of employee engagement, employer branding, and psychological attachment

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Mediating
effects of
employee
engagement

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Abstract

Purpose – The purpose of this paper is to report the findings of a study which examines the relationship between transformational leadership and intention to leave through the mediating role of employee engagement, employer branding, and psychological attachment.

Design/methodology/approach – Transformational leadership, employee engagement, employer branding, and psychological attachment were assessed in an empirical study based on a sample of 405 full-time employees working in information technology (IT) organizations in India. The data which were obtained using Google doc and a printed questionnaire was analyzed through structural and measurement model.

Findings – The results reveal that transformational leadership style directly influences employee intention to leave. Transformational leadership and employer branding is mediated by employee engagement. The leadership relation with psychological attachment is mediated by employer branding.

Practical implications – The implications of the study are of utmost importance for Indian IT industries facing high voluntary turnover in recent times. Transformational leaders in teams contribute to develop employee engagement, employer branding, and psychological attachment. Imparting transformational leadership training to team leaders can help in generating psychological attachment with the employees which would go a long way.

Originality/value – This study explores the relationship among transformational leadership style, employee engagement, employer branding, and psychological attachment which has not been explored theoretically and tested empirically in an Indian context.

Keywords Transformational leadership, Employee engagement, India, Employer branding, Intention to leave, Psychological attachment

Paper type Research paper

Introduction

The evolution of leadership theory and practice has attracted researchers on a quest to explain the influence of leadership by developing models. A review of developments in the field of leadership published in the Annual Review of Psychology (Avolio *et al.*, 2009) raises the need to determine causal mechanisms that link leadership to various organizational interim and ultimate outcomes, and highlights the importance of a strategy-driven leadership. It points toward further research to examine the role of mediators, in order to explain the significance of leadership for organizational outcomes.

Transformational leadership is one of the most sought after approaches to leader behavior that transforms and inspires followers to be of greater value to the organization (Ghadi *et al.*, 2013). Earlier research on the outcomes of transformational leadership shows that it can predict job behavior (Piccolo and Colquitt, 2006) and financial performance over a length of time (Bass *et al.*, 2003). The present study focuses on the transformational leadership style of information technology (IT) professionals. One of the most important human resource (HR) challenges faced by IT industries in India is the high rate of voluntary employee turnover, as revealed by triangulation research. The challenges faced by these organizations call for



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Title: Role ambiguity, job interdependence, trust and horizontal-flexible design affecting job satisfaction

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Abstract: This paper investigates how role ambiguity, job interdependence, trust, and horizontal-flexible design at the workplace affect job satisfaction. The study is focused on full-time employees of a manufacturing organisation in India. Results show the relation of these variables with job satisfaction. Path analysis was used to find the relationship between the constructs. Job characteristics like role ambiguity, job interdependence, trust, and horizontal-flexible design predict job satisfaction. Literature on work design and organisation behaviour highlight that attrition among the employees is affected by satisfaction of employees with the working conditions. The findings add to past knowledge on the factors influencing job satisfaction and open avenues for understanding attrition. An implication on HR interventions for the practitioners is discussed.

Keywords: job satisfaction; role ambiguity; job interdependence; trust; work design.

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THE RELATIONSHIP BETWEEN WORK STRESS, JOB SATISFACTION AND EMPLOYEES TURNOVER INTENTION : A STUDY ON INDIAN MANUFACTURING ORGANIZATION EMPLOYEES

P. Tripathi* and M. K. Pandey**

Job is an important part of life. Quality of life is affected if one is not satisfied with the job. Job satisfaction also affected the organizational commitment and employee's turnover intention. Work stress can have effects on employees' organizational commitment, job satisfaction and employees turnover intention besides other common factors. In this setting, this research holds the aim of examining the effects of work stress on organizational commitment, job satisfaction and turnover intention of employees. This descriptive-correlational study was performed on 128 employees working at manufacturing organization of Gurgaon, India, in 2015. The participants were chosen using a census approach. The tools for data collection included a demographic questionnaire, Cooper Work Stress Questionnaire, Camman, Fichman, Jenkins, and Flesch Job Satisfaction Scale, Bozeman and Perrew's organizational commitment scale and Cammann, Fichman, Jenkins, and Klesh Turnover Intention Scale. The analysis of the data from this study was done by using the SPSS software, version 21, using Descriptive Statistics and Correlation Coefficient Significant Test was used to investigate the variables. Results indicate that negative relationship between work stress and job satisfaction. It is also found that work stress positively related with turnover intention, job satisfaction negatively related with turnover intention. Results show that Work Stress directly or indirectly related on Job Satisfaction and Turnover Intention.

Work has become an essential part of our existence as human beings. Once we start working, the possibility is that we will spend almost all the remaining years of our lives at work. Nevertheless, certain factors within the organization often interfere with the workers' abilities to assist the organization achieve its goals. Job satisfaction and stress are inter-related things. If a person is stressed on his job and is not satisfied he will not be able to deliver his/her 100% so his/her efficiency will be affected. Good organizations try that such an environment should be provided to their employees that they remain satisfied and unstressed with aim that their organizations excel to the maximum. Those organizations who do not care their employees get ultimately disappeared from this global market of competition.

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Manjinder
24/07/2022

दूरदर्शन: ग्रामीणों की धार्मिक आस्था का संवाहक

डा. सुनील कुमार
असिस्टेंट प्रोफेसर, जनसंचार विभाग
वीर बहादुर सिंह पूर्वांचल विश्वविद्यालय, जौनपुर

प्रस्तावना:

टेलीविजन ने पूरे विश्व की दुनिया को बदल डाला है। इसके चलते सूचनाओं का असंतुलन अब दूर की कौड़ी हो गई है। मतलब अगर कोई भी घटना किसी भी देश में होती है, तो उसका प्रभाव तुरंत देखने को मिलता है। यानी को कोई भी सूचना या खबर को अब लोगों से दूर नहीं रखा जा सकता है। इससे लोगों के ज्ञान और शिक्षा में काफी वृद्धि हुई है। रही बात भारत में दूरदर्शन की तो यह यहां के गांव के लोगों के परिदृश्य में काफी परिवर्तन ला रहा है। कहने का मतलब दूरदर्शन ने समाज को बहुत अधिक प्रभावित किया है। हम यहां इस बात पर अध्ययन कर रहे हैं कि दूरदर्शन ने ग्रामीण लोगों की धार्मिक भावना में काफी वृद्धि की है। गांव के भी लोग मंदिर- मसजिद, चर्च और गुरुद्वारे में जाने में रूचि दिखा रहे हैं। लोग मंदिर घर में पूजा -पाठ के साथ अपने धर्म गुरुओं और देवी देवताओं के धार्मिकस्थलों की यात्रा और मेले उर्स पर भी काफी संख्या में जाने लगे हैं।

देश में यह साफ़ दिखता है। 1987 में जब रामानंद सागर की रामायण दूरदर्शन पर दिखाई जाती थी, तो दस करोड़ लोग अपना सारा काम काज छोड़कर उसे देखते थे। रविवार को यह कार्यक्रम देखने के लिए लोग घरों में इस तरह कैद हो जाते थे कि गांव और मुहल्ले की सड़को पर सत्राटा पसर जाता था। खेत-खलिहान में भी कोई नहीं मिलता था। मानों दूरदर्शन के कार्यक्रम के दौरान सबकी दिल और धड़कन कुछ देर के लिए थम सी गई हो। रामायण जैसे धार्मिक ग्रन्थ की महत्ता इसके बाद बढ़ी लोग इसके पात्रों को भी ठीक उसी किरदार के भगवान के रूप में देखने लगे।

15 सितंबर 1959 को दिल्ली में दूरदर्शन का पहला प्रसारण प्रयोगात्मक आधार पर आधे घंटे के लिए शैक्षिक और विकास कार्यक्रमों के रूप में शुरू किया गया था। किसी भी मीडिया के लिए पचास साल से ज्यादा का सफर बहुत मायने रखता है वक्त के साथ चलने में दूरदर्शन ने कई उतार-चढ़ाव तय किए



Meta-Analysis

Association of C677T polymorphism (rs1801133) in MTHFR gene with depression

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Abstract: Depression is one of the mental disorders with a state of low mood and aversion to activities that exerts a negative effect on a person's thoughts and behavior. Genetic association studies on MTHFR C677T polymorphism and depression have been repeatedly performed over the last two decades, but results are inconsistent. The aim of the present study was to assess the relationship between MTHFR C677T polymorphism and depression by literature review and meta-analysis. Four electronic databases, PubMed, Google Scholar, Science direct and Springer Link were searched for case control articles focusing on MTHFR C677T polymorphism and the risk of depression. A total of 30 studies including 4,802 cases and 17,362 controls were involved in present meta-analysis. When all the eligible studies were pooled into this meta-analysis, significant association between depression risk and MTHFR C677T polymorphism was found in three genetic models (Additive model: OR T vs C= 1.20, 95 % CI= 1.00-1.34, p=0.0004; homozygote model: OR TT vs.CC=1.37, 95% CI= 1.13-1.65, p=0.0004; dominant model: OR TT+CT vs CC=1.13, 95 % CI= 0.99-1.28, p=0.04), while meta-analysis with other two genetic models did not show association with other two genetic models (recessive model: OR TT vs CT+CC= 1.36, 95 % CI= 0.91-2.04, p=0.13; co-dominant model: OR CT vs CC=1.00, 95 % CI=0.93-1.08,p=0.84). Present meta-analysis supports that there is a meager significant association between MTHFR C677T polymorphism and depression risk.

Key words: Meta-analysis; Depression; MTHFR; C677T; Genotype; Polymorphism.

Introduction

Depression is one of the most common psychiatric disorders causing impairment in several domains of daily life. The etiology of depression remains unexplained. It is a clinically heterogeneous disorder thought to result from an interaction of multiple genes with environmental influences and developmental epigenetic components. Epidemiologic studies show that roughly 40%-50% of the risk for depression is genetic (1). Neuroimaging and postmortem studies in patients with depression have demonstrated that decreased hippocampal volume (an average of 9% across all studies), atrophy of existing neurons and decreased neurogenesis may contribute to the pathophysiology of depression.

A possible role of nutritional factors in the pathogenesis of neuropsychiatric disorders has long been debated and epidemiologic studies have suggested that folate deficiency may increase the risk for several psychiatric disorders like-schizophrenia, anxiety, bipolar disorder and depression(2,3). Published case-control studies on folate status and depression demonstrate strong relationship (4). The main role of folate is in mediating transfer of one carbon for various cellular reactions (5). Folate plays an integral role in DNA synthesis, methylation, integrity and stability (5,6). Methylenetetrahydrofolate reductase (MTHFR) is an important enzyme of folate metabolic pathway and play a vital role in one carbon metabolism by regulating the channeling of one carbon units between DNA synthesis and DNA methylation (7).

MTHFR enzyme converts 5,10-methylene tetrahydrofolate to 5-methyl tetrahydrofolate which donates

methyl group for methionine synthesis (8). MTHFR gene is located at chromosome 1.p36.3 and composed of 2.2 kilobases with a total of 11 exons (9). Several polymorphisms have been described so far in MTHFR gene, only two C677T and A1298C polymorphisms are clinically important and intensively investigated. C677T (ala222val) has a profound effect on the activity of enzyme, producing more labile forms with reduced activity (10) and increased blood homocysteine levels (11,12).

There is marked variation in the frequency of mutant T allele between populations, range approximately from 0.24 to 0.44 in Caucasian populations, 0.06 in an African population, and 0.35 to 0.41 in Asian populations (13-16). C677T polymorphism is reported risk factor for several neuropsychiatric and neurodegenerative diseases, including schizophrenia (17,18), bipolar disorder (19), autism (20), anxiety (21), Alzheimers disease (22) and Parkinson disease (23).

Several case-control studies have demonstrated a positive relationship between depression and MTHFR C677T polymorphism (24-27) but such relationship have not been confirmed in some other studies (28,29). These inconsistent results may be owing to control selection, ethnic heterogeneity and population substructure. The aim of the present study was to systematically review and perform a meta-analysis on studies that have investigated the association between the C677T polymorphism in the MTHFR gene and depression.

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Systematic Review

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Methylenetetrahydrofolate reductase A1298C genetic variant & risk of schizophrenia: A meta-analysis

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Background & objectives: Methylenetetrahydrofolate reductase (MTHFR) is an important enzyme of folate metabolism, whose role in schizophrenia is debatable. Numerous case-control studies have investigated the association of *MTHFR* A1298C polymorphism with schizophrenia, but results are controversial. The aim of the present study was to find the association between *MTHFR* A1298C gene polymorphism and schizophrenia.

Methods: PubMed, Google Scholar, Science Direct and Springer link databases were searched for case-control association studies in which *MTHFR* A1298C polymorphism was investigated as a risk factor for schizophrenia. In all, 19 studies with 4049 cases and 5488 controls were included in this meta-analysis. Odds ratios (ORs) with 95 per cent confidence intervals (CIs) were used as an association measure.

Results: The results of meta-analysis reported a significant association between A1298C polymorphism and schizophrenia risk in overall comparisons in all genetic models (C vs. A: OR=1.13, 95% CI=1.01-1.27, $P=0.02$; CC vs. AA: OR=1.20, 95% CI=1.03-1.39, $P=0.02$; AC vs. AA: OR=1.13, 95% CI=1.03-1.23, $P=0.009$; AC+CC vs. AA: OR=1.14, 95% CI=1.02-1.24, $P=0.002$; CC vs. AA+AC: OR=1.17, 95% CI=1.01-1.35, $P=0.04$).

Interpretation & conclusions: *MTHFR* A1298C polymorphism was found to be a risk factor for schizophrenia and might have played a significant role in the pathogenesis of schizophrenia.

Key words A1298C - folate - homocysteine - meta-analysis - methylenetetrahydrofolate reductase - polymorphism - schizophrenia

Schizophrenia is a psychiatric disorder with the prevalence rate of 1 percent^{1,2}. According to the Diagnostic and Statistical Manual of Mental Disorders IV criteria (DSM-IV)³, the diagnosis is based on symptoms such as delusions, hallucinations and affective flattening and alogia. The most widely considered hypothesis of schizophrenia is neurodevelopment hypothesis which integrates influences of environment and genes.

The neurodevelopment hypothesis of schizophrenia postulates that altered biochemical pathways and defective neural circuitry during foetal brain development lead to cognitive and emotional defects in later part of life⁴. In the brain of schizophrenics, several neurotransmitter network systems have been found to be defective. Numerous schizophrenia candidate genes have been reported⁴⁻⁷.



Prevalence of COMT Val158Met polymorphism in Eastern UP population

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Abstract: Catechol-O-methyltransferase (COMT) is an abundant S-adenosylmethionine (SAM)-dependent methyltransferase that methylates catechol compounds, including catecholamines and catecholestrogens. COMT gene located at chromosome 22q11.2 contains a functional polymorphism at codon 158 (Val158Met), which has been related to psychiatric diseases and different types of cancer. COMT might affect tHcy levels because as a by-product it converts SAM to S-adenosylhomocysteine (SAH), which is reversibly converted to homocysteine. The aim of the present study was to determine the frequency of COMT Val158Met polymorphism in scheduled caste (SC) population of Jaunpur district. Total 100 healthy unrelated subjects belonging to SC, between the age group of 18 to 70 years were randomly selected for the present study. 3 ml blood samples were collected from each subject. The inclusion criteria of subjects for present study are that they should be domicile of Uttar Pradesh, and healthy without any individual/ family history of genetic or metabolic disorders. COMT Val158Met polymorphism analysis was done by PCR-RFLP method. The Val/Val genotype was found in 48 subjects, Val/Met in 40 subjects and Met/Met genotype in 12 subjects. Genotype frequencies of Val/Val, Val/Met and Met/Met were 0.48, 0.40 and 0.12 respectively. The allele frequency of Val allele was found to be 0.68 and Met allele frequency was 0.32.

Key words: Catechol-O-methyltransferase; COMT; Val158 Met; Genotype; Allele; Eastern UP.

Introduction

Catechol-O-methyltransferase (COMT) is an intracellular methylation enzyme that catalyzes the first step of the dopamine degradation pathway and inactivates catecholamines, which include dopamine, epinephrine, and norepinephrine. It is accepted widely that COMT plays a crucial role in modulating nerve function and physiology, due to its broad distribution throughout the brain and various peripheral tissues. COMT enzyme occurs in two distinct isoforms: a smaller soluble protein in the cytoplasm (S-COMT; 221 aa) and a longer membrane-bound isoform (MB-COMT 271 aa) (1). The MB-COMT is predominantly expressed in brain neurons, while the S-COMT is predominantly expressed in blood cells and tissues like liver and kidney (1).

The COMT gene is located on chromosome 22q11.1–q11.2 and contains six exons. A single base pair change (G471 A) in exon 4 of the COMT gene, at position 472 in the long mRNA, and 322 in the short mRNA, results in an amino acid change (Val→Met), at codon 158 of MB-COMT and codon 108 of S-COMT, which decreases the activity level of the COMT enzyme 3 to 4 fold (2,3). In addition to being a functional polymorphism, this SNP also creates a polymorphic NlaIII restriction site in the DNA. The two alleles are referred to as Val or COMT*H, or the NlaIII site-absent (G; Val) allele that encodes the thermostable, high activity enzyme and Met or COMT*L, or the NlaIII site-present (A; Met) allele that encodes the thermolabile, low activity enzyme (3,4,5). Presence of a methionine at position 158 decreases the thermostability of COMT

and reduces the activity of the enzyme to 25% of that of the COMT 158-Val enzyme, which leads to diverse changes in cognitive function and human physiology (6). Both the alleles are co-dominant, individuals having Val/Met genotype have an intermediate level of COMT activity in comparison to homozygous (Val/Val) individuals (3). Very limited data about COMT Val158Met mutation frequency are available from Indian population, and no data are available about Uttar Pradesh population; hence, the aim of the present study is to estimate frequency of COMT Val158Met polymorphism in healthy individuals of Eastern Uttar Pradesh.

Materials and Methods

3 ml blood samples were collected from randomly selected 100 unrelated healthy individuals belonging to scheduled caste (SC) population of Eastern Uttar Pradesh belonging to both the genders (50 males and 50 females). All subjects were between the age group of 18–70 years. All subjects gave their informed written consent and the study was approved by the Institutional Ethics Committee of VBS Purvanchal University, Jaunpur. A questionnaire was used to collect demographic information, personal medical history and family history. The inclusion criteria of subjects were- (i) subjects should be domicile of Eastern Uttar Pradesh, (ii) subjects should belong to scheduled caste, (iii) subjects should be healthy, without any individual/ family history of genetic disorder and (iv) subjects should be unrelated and randomly selected from the Eastern UP population.

RESEARCH ARTICLE

Impact of Catechol-O-Methyltransferase Val 158Met (rs4680) Polymorphism on Breast Cancer Susceptibility in Asian Population

Vandana Rai*, Upendra Yadav, Pradeep Kumar

Abstract

Background: Catechol-O-methyltransferase (COMT) is an important estrogen-metabolizing enzyme. Numerous case-control studies have evaluated the role COMT Val 158Met (rs4680;472G->A) polymorphism in the risk of breast cancer and provided inconclusive results, hence present meta-analysis was designed to get a more reliable assessment in Asian population. **Methods:** A total of 26 articles were identified through a search of four electronic databases- PubMed, Google Scholar, Science Direct and Springer link, up to March, 2016. Pooled odds ratios (ORs) with 95% confidence intervals (CIs) were used as association measure to find out relationship between COMT Val158Met polymorphism and the risk of breast cancer. We also assessed between study heterogeneity and publication bias. All statistical analyses were done by Open Meta-Analyst. **Results:** Twenty six case-control studies involving 5,971 breast cancer patients and 7,253 controls were included in the present meta-analysis. The results showed that the COMT Val158Met polymorphism was significantly associated with breast cancer risk except heterozygote model (allele contrast odds ratio (ORAvsG)= 1.13, 95%CI=1.02-1.24, p=0.01; heterozygote/co-dominant ORAvsGG= 1.03, 95%CI=0.96-1.11, p=0.34; homozygote ORAvsGG= 1.38, 95%CI= 1.08-1.76, p=0.009; dominant model ORAA+GAvsGG= 1.08, 95%CI=1.01-1.16, p=0.02; and recessive model ORAvsGA+GG= 1.35, 95%CI=1.07-1.71, p=0.01). In addition, we also performed subgroup analysis based on source of controls and menopausal state of patients. **Conclusions:** In conclusion, the COMT Val158Met polymorphism was related to increased breast cancer susceptibility in the Asian population.

Keywords: Catechol-O-methyltransferase- COMT- Val158Met- 472G->A- breast cancer-Asian population

Asian Pac J Cancer Prev, 18 (5), 1243-1250

Introduction

Breast cancer (BC) is the leading cause of cancer death among females (Jemal et al., 2011; Guo et al., 2012) and its development is a multifactorial complex process influenced by multiple genetic variants and environmental factors (Nathanson et al., 2001; Guo et al., 2012). Estrogen hormones affect the cell growth and proliferation during breast carcinogenesis and metabolized by several enzyme including COMT, which metabolized it into biologically non-hazardous methoxyestrogens (Onay et al., 2008). COMT enzyme are found in two isoforms in the cells: a cytoplasmic smaller protein (S-COMT; 221 aa) and a membrane-bound longer protein (MB-COMT 271 aa) (Tenhunen et al. 1994).

COMT gene is present at chromosome 22q11.1 and a single base pair G->A substitution at position 472(G472A/Val158Met) in exon 4, results in substitution of valine by methionine in COMT enzyme (Lotta et al., 1995; Lachman et al., 1996). The two alleles are referred to as Val(G) and Met(A). Val allele encodes the thermostable high activity COMT enzyme and Met allele encodes the

thermolabile low activity COMT enzyme (Spielman and Weinshilboum, 1981; Lotta et al., 1995; Nobile et al., 2010). Both the alleles are co-dominant, i.e. heterozygous individuals (Val/Met) have an intermediate level of COMT activity (Lotta et al., 1995). The frequency of the mutant Met allele vary greatly among the populations studied, frequency of Met allele is reported as 0.56 in American (Vandenberg et al., 1997), 0.5 in European (Kunugi et al., 1997), and 0.27 in Asian (Chen et al., 1997) populations. COMT gene Val158Met is a clinically functional polymorphism, and reported as risk factor for several disorders/diseases- schizophrenia (Kayahan et al., 2013), attention-deficit hyperactivity disorder (Retz et al., 2008), autism (Gadow et al., 2009), drug abuse (Vinkers et al., 2013), posttraumatic stress disorder (Valente et al., 2011), and cancer (Omrani et al., 2009) etc.

COMT enzyme metabolized estrogen and its carcinogenic derivatives, hence study of COMT gene polymorphisms as risk for cancer is of particular interest. In the past years, several case-control studies have been investigated the association between COMT Val158Met polymorphisms and breast cancer susceptibility (Kocabas

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Methylenetetrahydrofolate Reductase C677T Polymorphism and Risk for Male Infertility in Asian Population

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Abstract Methylenetetrahydrofolate reductase (MTHFR) is a critical enzyme of folate pathway and required for DNA synthesis and methylation. MTHFE C677T polymorphisms is reported as risk factors for various diseases and disorders like birth defects, metabolic, neurological, psychiatric disorders, and cancers. Several studies have investigated association between the MTHFR C677T polymorphism and male infertility. To assess the risk associated with MTHFR C677T polymorphism in Asian population, a meta-analysis was performed. Included articles were collected from the following electronic databases: PubMed, Google Scholar, and Science direct up to March 2015. Risk was estimated as pooled odds ratios (ORs) with confidence intervals (CIs) for assessment. Seventeen case-control studies involving 4392 breast infertile males and 3667 fertile males were found suitable for the inclusion in the present meta-analysis. Results showed that the C677T polymorphism was significantly associated with male infertility in Asian population using all the five genetic models (OR_{T vs. C} (allele contrast model) = 1.86, 95% CI 1.7–2.0; OR_{TT vs. CC} (homozygote model) = 1.96, 95% CI 1.67–2.30; OR_{CT vs. CC} (co-dominant model) = 1.40, 95% CI 1.18–1.62; OR_{TT+CT vs. CC} (dominant model) = 1.53, 95% CI 1.30–1.77; OR_{TT vs. CT+CC} (recessive model) = 1.67, 95% CI 1.44–1.92). In conclusion, results of present meta-analysis strongly supported an association between C677T polymorphism and male infertility in Asians.

Keywords Male infertility · Polymorphism · MTHFR · C677T · Meta-analysis

Introduction

Infertility is very common reproductive problem, which affects approximately 15–20% of couples worldwide. Failure in conceiving a child after 1 year of regular unprotected intercourse is known as infertility. About 50% cases of infertility are due to male factors, especially defect in sperms or semen quality i.e. low sperm count [1–3]. Male infertility is a multifactorial clinical disorder with genetic as well as environmental causes. Several genetic risk factors for male infertility have been reported like aneuploidies, chromosomal translocation, deletions especially Y chromosome microdeletions and gene mutations [4]. About 50% cases of male infertility are idiopathic [3, 5].

Folates are a group of inter-convertible coenzymes, involved in DNA synthesis, methylation and amino acid metabolism. Folate deficiency and related hyperhomocysteinemia is reported as a risk factor for several diseases and disorders including male infertility. Spermatogenesis is a very complex event which is controlled by several genes present on autosomes and Y chromosome [6]. Folate deficiency and polymorphisms of folate pathway genes can influence DNA methylation and gene expression and may contribute to infertility [7].

Methylenetetrahydrofolate reductase (MTHFR) is a crucial enzyme of folate/homocysteine metabolic pathway. MTHFR reduces the 5–10-methylenetetrahydrofolate to its biologically active form 5-methyltetrahydrofolate, which donates its methyl group for the conversion of homocysteine into methionine [8]. Several polymorphisms in

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ORIGINAL ARTICLE

Distribution of *MTHFR* C677T Gene Polymorphism in Healthy North Indian Population and an Updated Meta-analysis

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Abstract Methylene tetrahydrofolate reductase (*MTHFR*) is a key enzyme of folate pathway. Several polymorphisms were reported in *MTHFR* gene but C677T polymorphism is most studied and it has been reported to be risk factor for several diseases/disorders. The present study was designed to explore the frequency of *MTHFR* C677T polymorphism in North Indian healthy population. In addition to this a meta-analysis of published articles was also performed to estimate the global prevalence of *MTHFR* C677T polymorphism. A total of 1000 unrelated healthy subjects were selected for *MTHFR* C677T polymorphism analysis. Different databases were searched for eligible articles. Prevalence proportion with 95 % CI was used to determine global prevalence of T allele and TT genotype. Meta-analysis was performed by Open meta-analyst. In 1000 blood samples analyzed, the frequency of T allele and TT genotype was 11 and 1 % respectively. Results of the meta-analysis showed that the global prevalence of T allele and TT genotype were 24.0 % (95 % CI 21.7–26.5) and 7.7 % (95 % CI 6.5–8.9) respectively. In sub-group meta-analysis, the lowest frequency of T allele was found in Africans (10.3 %; 95 % CI 3.8–16.8), and highest in Europeans (34.1 %; 95 % CI 31.9–36.3). The frequency of T allele in the North India is 11 %. The results of the meta-analysis showed that the frequency of the T allele and the TT genotype of C677T is highest in the Caucasian population.

Keywords *MTHFR* · C677T · Polymorphism · Meta-analysis · Prevalence proportion · Global frequency

Introduction

Methylene tetrahydrofolate reductase (*MTHFR*) is a crucial enzyme in folate/homocysteine pathway. It catalyzes the conversion of 5,10-methylene tetrahydrofolate to 5-methylene tetrahydrofolate, which donates methyl group for the conversion of homocysteine to methionine. *MTHFR* gene is located at chromosome 1p36.3 [1]. A number of single nucleotide polymorphisms (SNPs) are reported in *MTHFR* gene but C677T mutation (rs1801133) is the most studied and clinically important. C677T polymorphism lies in exon 4, in which cytosine is replaced by thymine at 677th position, which resulted in an alanine to valine substitution at position 222 in protein (A222V) [2, 3]. C677T mutation was shown to render the enzyme thermolabile [2]. *MTHFR* enzyme functions as dimer or tetramer and Flavin adenine dinucleotide (FAD) is the cofactor. The C677T mutation changes the secondary structure of the peptide and interactions between monomers. The A → V mutation increases the rate of dissociation of FAD and loss of FAD is linked to changes in quaternary structure and enzymatic activity reduces [4–6]. By docking study it is established that the mutant enzyme (222V) has less affinity towards its cofactor FAD than the normal enzyme (222A) [7]. The variant protein loses its cofactor FAD more quickly and has lower stability. C677T polymorphism effect can be suppressed by addition of folate, which causes a higher FAD affinity [8].

MTHFR C677T polymorphism has been reported as a risk factor for several diseases/disorders such as—Down syndrome [9, 10], neural tube defects [11], orofacial clefts [12],

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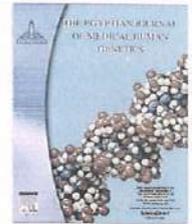
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REVIEW

Null association of maternal *MTHFR* A1298C polymorphism with Down syndrome pregnancy: An updated meta-analysis



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KEYWORDS

Down syndrome;
Methylenetetrahydrofolate reductase;
MTHFR;
A1298C;
Homocysteine;
Meta-analysis;
Folate

Abstract *Background:* Methylenetetrahydrofolate reductase (*MTHFR*) is an important enzyme of folate/homocysteine pathway and is essential for DNA synthesis and methylation. *MTHFR* gene polymorphisms have been reported as risk factors for congenital defects and several metabolic and neurological disorders. Several studies have investigated an association between maternal *MTHFR* A1298C polymorphism and Down syndrome (DS) child. However, results have been inconclusive.

Aim: A meta-analysis of published case-control studies up to December, 2015 was performed to investigate this association.

Methods: Electronic databases were searched for case-control studies and odds ratios (ORs) with 95% confidence intervals (CIs) were estimated to assess the association. Total twenty-one case-control studies with 2004 cases and 2523 controls were included in the present meta-analysis.

Results: Results of meta-analysis showed a significant association between maternal A1298C polymorphism and DS pregnancy with homozygote model (CC vs. AA: OR = 1.26, 95% CI = 1.01–1.58, $p = 0.04$), but no such association was found in any other genetic models (C vs. A: OR = 1.07, 95% CI = 0.93–1.23, $p = 0.32$; CC + AC vs. AA: OR = 1.08, 95% CI = 0.96–1.23, $p = 0.18$; CC vs. AC + AA: OR = 1.11, 95% CI = 0.90–1.36, $p = 0.30$; AC vs. AA: OR = 1.06, 95% CI = 0.93–1.21, $p = 0.34$).

Conclusion: Subgroup and sensitivity analysis results showed that this polymorphism is a risk factor for DS pregnancy in Asian populations but not in Caucasian population as well as in overall meta-analysis.

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Research Article

Nutritional Value of Three Different Oyster Mushrooms Grown on Cattail Weed Substrate

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Keywords: *Pleurotus* spp.; Biological efficiency; Protein; Fat; Crude fiber

Abstract

Three distinct oyster mushroom strains including *Pleurotus florida* (PF), *Pleurotus eous* (PE) and *Pleurotus sajor-caju* (PS) were successfully cultivated on cattail weed substrate. A comparative analysis of different parameters viz., biological efficiency (BE) and protein, carbohydrate, crude fiber and fat content in fruitbodies were evaluated. According to biological efficiencies obtained PF (90%) was superior strain, while order can be represented as 90% > 89% > 82% respectively in PF>PS>PE. The highest protein (4.8 g), lipid (0.61 g) and dietary fiber (31.6g) values were obtained in the fruitings of *Pleurotus sajor-caju*. However, the utmost level of carbohydrate (41g) was recorded in *Pleurotus eous*. On the basis of the observation of the present study we recommend use of cattail weed substrate for cultivation of oyster mushrooms for better nutrients.

Introduction

Mushrooms having magnificent medicinal, delicacy as well as nutritive values are interestingly used as human food from the time everlasting. The fruiting bodies or mycelia are used as food and food-flavoring material for centuries due to their vast diversity of bioactive components [1]. Mushrooms normally ranges between the values of 20 and 40% protein, which ranks them better than many common legume sources like soybeans, peanuts, and protein-yielding vegetables [2,3]. Moreover, mushroom proteins specially contain essential amino acids needed in human diet and are especially rich in lysine and leucine, which lacks in most cereal foods [2]. Besides, mushrooms are rich in multiple minerals, and vitamins, and they contain an abundance of essential amino acids.

Pleurotus is a versatile genus belonging to white-rot basidiomycete fungi and well known for their complexity of the enzymatic system and prominent lignocellulolytic property, member of this genus can colonize a wide range of natural lignocellulosic wastes [1,4]. Apart from flavour and taste, the fruiting bodies of mushrooms are considered as sources of organic nutrients such as digestible proteins, carbohydrates, fibre and certain vitamins, as well as minerals and antioxidants [5]. Therefore, *Pleurotus* is one of the second most cultivated mushrooms and cultivated all over world.

Cultivation of several species of *Pleurotus* is cheapest and easiest to grow compared to all the cultivated edible mushrooms. Cultivation does not need difficult substrate preparation technique and former can be grown on ordinary lignocellulosic agro industrial residues containing lignin, cellulose and hemicelluloses. *Oyster* mushrooms are efficient lignin degraders which can grow on wide variety of agricultural wastes

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Antibacterial Activity of some Novel 4-Arylmethylenes-2,4-dihydro 2,5-disubstituted-3H-pyrazol-3-ones and 4,4'- Arylmethylene bis (2,4-dihydro-2,5-disubstituted- 3H-pyrazol-3ones)

Amrendra Kumar Singh

ABSTRACT

The condensation of 2,4-dihydro-2,5-disubstituted-3H-pyrazol-3-ones and aromatic aldehydes in acidic medium (glacial acetic acid) led to the formation of the corresponding 4-arylmethylene-2,5-disubstituted-3H-pyrazol-3-ones and 4,4'- Arylmethylene bis-(2,4-dihydro-2,5-disubstituted-3H-pyrazol-3ones). The title compounds have been screened their antibacterial activity against *staphylococcus aureus* and *Escherichia coli*.

The importance of pyrazolones chemistry lies in the fact that these have occupied a unique position in heterocyclic chemistry due to their wide applicability in various fields viz. Industry⁽¹⁾, medicinal therapy^(2,3) and agriculture⁽⁴⁾. 2,4-Dihydro-3H- pyrazol-3-one derivative have physiological properties and have found application as antibacterial⁽⁵⁾ antihypertensive⁽⁶⁾, antiinflammatory⁽⁷⁾, anticonvulsant⁽⁸⁾ antitumor⁽⁹⁾ and antifungal⁽¹⁰⁾ agents. These importances of pyrazolones derivative have promoted us to synthesis title compounds and our attempt in to correlate antibacterial activity and structure of the compounds.

KEYWORDS : Pyrazole, Aromatic Aldehydes, Glacial Acetic Acid, Arylmethylene, Anticonvulsant

RESULT AND DISCUSSION

The reaction of 2,2-dihydro-2,5- disubstituted-3H-pyrazol-3ones(I) condense⁽¹¹⁻¹²⁾ readily with out in acetic acid yield 4- arylmethylene-2,4- dihydro-2,5- disubstituted-3H-pyrazol-3-one (III) and 4,4'-arylmethylenebis (2,4-dihydro-2,5- disubstituted-3H- pyrazol-3- one) (IV).

The reaction has been thoroughly investigated using various pyrazolones and a wide variety of substituted benzaldehydes to give 4-arylmethylene-2,4-dihydro-2,5- disubstituted-3H-pyrazol-3-ones (III) AND 4,4'- Arylmethylene bis (2,4-dihydro-2,5-disubstituted-3H-pyrazol-3ones (IV) Scheme-1 (Table-1) It is noteworthy that when

$X=p-N<Me$ i.e. p-N,N-dimethyl aminobenzaldehyde condense with 2,4-Dihydro-2,5- disubstituted-3H-pyrazol-3-ones gave only the product (III). The corresponding bis compounds (IV) were not observed similarly, when the condensation is carried out with benzothiazolyl group in pyrazolones and aromatic aldehydes, the only product (III) were observed and the corresponding bis compounds (IV) were not observed (Table1).

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Antimicrobial Activity of Some Isomeric Spiro Pyrazolones

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ABSTRACT

4-arylmethylene-2,4-dihydro-2,5-disubstituted-3H-pyrazol-3-ones (1a-f) as dipolarophile react with benzonitrile oxide (2, as 1,3-dipole) to yield E/Z-4,5-dihydrospiro-[3-phenyl-5-substituted phenyl isoxazole-4,4'-(2',4'-dihydro-5'-methyl-2'-phenyl-phenyl methyl-3'-pyrazol-3'-ones)]

KEYWORDS: Pyrazol, Benzonitrile, Isoxazole, Dipolarophile.

INTRODUCTION

1. Dipolar Cycloaddition reactions have been studied to a numerous unsaturated systems leading to five membered ring heterocycles. 1,3,4-Arylmethylene-2,4-dihydro-2,5-disubstituted-3H-pyrazol-3-ones, (as dipolarophile) reacted with diphenylnitrilimine (as 1,3-dipole) to yield two isomers, VIZ E and Z-4,5-Dihydro spiro-(4-aryl-1,3-diphenyl pyrazol-5,4'-(2',4'-dihydro-2',5'-disubstituted-3'H-Pyrazol-3'-ones))

1.3 Dipolar Cycloaddition reaction of 4-arylmethylene-2,4-dihydro-5-methyl-2-phenyl-phenylmethyl-3H-pyrazol-3-ones (1a-f) as dipolarophile with benzonitrile oxide (2, as 1,3-dipole) resulted in the formation of E/Z-4,5-dihydro spiro [3-phenyl-5-substituted phenyl isoxazole-4,4'-(2',4'-dihydro-5-methyl-2'-phenyl-phenylmethyl-3'H-pyrazol-3'-one)] (scheme-1). This reaction is stereo specific as well as stereo selective and the peculiarity of the reaction commanded interest and stimulated to undertake the synthetic process. The benzonitrile oxide(2) is generated in situ by the reaction of benzhydroxamoyl chloride and triethylamine in the presence of dry chloroform at room temperature. The physical and spectral data of the compounds are presented (Table-1).

EXPERIMENTAL

Melting points were determined on a Buchi apparatus and are uncorrected. Microanalyses were carried out on a Coleman CH and N-analysers. IR spectra (Nujol) were recorded on Perkin-Elmer-720 and 257 spectrophotometers and PMR spectra (CDCl₃) on Varian A-60 and Jeol FX-90Q spectrometers using TMS as an internal standard.

4-Arylmethylene-2,4-dihydro-2,5-disubstituted-3H-pyrazol-3-ones⁽¹⁾ (1a-f) and the benzhydroxamoyl chloride⁽²⁾ were prepared following the standard methods. E/Z-4,5-dihydro spiro [3-phenyl-5-substituted phenyl isoxazole-4,4'-(2',4'-dihydro-5'-methyl-2'-phenyl-phenylmethyl-3'H-pyrazol-3'-one)](3a-f)

0.01 Mole (1.01g) of triethylamine was added in one lot into an ice cooled and magnetically well stirred solution of 0.01 mole (1.55g) benzhydroxamoyl chloride in 50 ml dry ether. The triethylamine hydrochloride started to precipitate immediately. After twenty minutes triethylamine hydrochloride was filtered rapidly and washed with dry ether (2X10ml). 0.01 mole of 4-arylmethylene-2,4-dihydro-2,5-disubstituted-3H-pyrazol-3-ones in 25ml dry chloroform was added immediately in one lot to the filtrate with the exclusion of the moisture. The reaction mixture was stirred for forty eight hours at room temperature.

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PHYSICO CHEMICAL AND BIOLOGICAL INVESTIGATIONS OF TWO LAKES MIRZAPUR, INDIA

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ABSTRACT

Mirzapur district popularly known as the city of lakes have six water bodies. In Mirzapur district out of six water bodies, very few are source of drinking water after preliminary treatment. Rest of the water bodies serves secondary purpose like irrigation fisheries and recreational activities etc. Present study concentrates on the physicochemical status of two lakes of Mirzapur district are Shahpura Lake & Lower Lake. The study in an attempt of qualitative and biological analysis to the water of two lakes.

Keywords: COD, Nutrients, Nitrate, Phosphate, B.O.D.

INTRODUCTION

Mirzapur popularly known as the district of lakes. These are six water bodies in Mirzapur district. Out of six water bodies, few are safe for drinking purpose after preliminary treatment, rest of the water bodies are used for secondary purposes like irrigation, fisheries, recreational activities etc. Present study concentrates on two lakes. It forms the both are eutrophic and sewage fed lake. Present Study deals with the comparative status of both the lakes. Due to addition of sewage concentration of nutrients increases day by day, this leads to eutrophication. The lake becomes anaerobic and oxygen demand depletes due to eutrophication.

The Lower Lakes which is one of the twin lakes, is situated midst the thickly populated area of the lake Mirzapur. The lake was constructed on the seepage Point of Upper Lake. It has a catchments area of 19.60 sq. km. and water spread area of 11.2 sq. km. The lake water is not suitable for drinking it is being used by large number of people living near or around the lake for daily needs of bathing, washing clothes & vehicles. The lake is anaerobic bottom water and increases the sinking rate of the silt particles into the bottom. The whole lake is thus converted into a large septic tank making the lake shallower and shallower day by day. Initially there were

SYNTHESIS AND CHARACTERIZATION OF SOME NOVEL 4-ARYLMETHYLENE-2,4 DIHYDRO-2,5-DISUBSTITUTED-3H-PYRAZOL-3ONES AND 4,4'-ARYLMETHYLENE BIS-(2,4-DIHYDRO-2,5-DISUBSTITUTED-3H-PYRAZOL-3-ONES.)

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ABSTRACT

The condensation of 2,4-dihydro-2,5-disubstituted-3H-pyrazol-3ones and aromatic aldehydes in acidic medium (glacial acetic acid) led to the formation of the corresponding 4-Arylmethylene-2,5-disubstituted-3H-pyrazol-3-ones and 4,4' arylmethylene bis-(2,4-dihydro-2,5-disubstituted-3H-pyrazol-3-ones)

KEY WORDS Pyrazol, aromatic aldehyde, glacial acetic acid, arylmethylene

INTRODUCTION

In recent years pyrazolones have gained much importance as construction of the heterocyclic systems especially as a result of new synthetic methods that have been developed for several new pyrazolones derivatives these are widely used in a number of field viz medicine^(1,2), Agriculture⁽³⁾ and industry⁽⁴⁾. 2,4-dihydro-3H-pyrazol-3-one derivatives have physiological properties and have found application as antibacterials, antihypertensive, antiinflammatory anticonvulsant, antitumor and antifungal agents.

RESULT AND DISCUSSION

The reaction of 2,4-dihydro-2,5-disubstituted-3H-pyrazol-3-one (I) condense^(5,6) readily with aromatic aldehyde (II) in acidic media^(7,8). The reaction when carried out in acetic acid yields 4-Arylmethylene-2,4-dihydro-2,5-disubstituted-3H-pyrazol-3-one (III) and 4,4'-arylmethylene bis (2,4-dihydro-2,5- disubstituted-3H-pyrazol-3-one)(IV).

The reaction has been thoroughly investigated using (2-phenyl methyl, 5-methyl; 2-(2-benzothiazolyl), 5-methyl; 2-phenyl, 5-methyl and 2,5-diphenyl, substituted 2,4-dihydro-3H-pyrazol-3-ones and a wide variety of substituted benzaldehydes. 4-Arylmethylene-2-(2-benzothiazolyl)-2,4-

ll

**EFFECT OF 1,3-DISUBSTITUTED PYRAZOL-5-ONE DERIVATIVES,
PHOTO STABILITY OF DYES ON PROTEINS MOLECULES**

Amrendra Kumar Singh*
S. Kumar**

ABSTRACT

The photo-stability of dyes, derivatives of 1,3-disubstituted pyrazol-5-one on protein molecule including the relationship between the dye's structure and photostability. The part played by the substituent in pyrazol components was assessed especially those in ortho positions. It has been found that light effect of dyes on proteins molecule proceeds according to the mechanism of photo-oxidation. The light effect of dyeing depends on the election on density of the azo bond on protein molecules. Some substituents in ortho positions to the azo bond increase the dye's photo stability.

Key words:- Pyrazol, azo dyes, photo effect, photo-oxidation

INTRODUCTION

The electronic induction of a molecule takes place by reaction absorption that causes the electronic's transition from an occupied orbital to a higher unoccupied orbital. Transition such as $\pi-\pi$ and new wining the visible range are necessary for a color to occur. The transition of an electron to a higher orbital leads to a configuration that may be characterized by two states the singlet state (anti-parallel electron spin) and the triplet state (parallel electron spins). Electron induced molecules are characterized by different properties than those in the fundamental state due to higher energy (80 to 400 kj/mole) Electron-induced should be treated as different chemical units with different bond lengths and angles between them as well as having different distributions of electron density.

The induction of the dye molecule is unstable and the molecule can restore its stability by transferring the whole or part of its energy to molecules. The emitting energy by fluorescence or phosphorescence. AS a result of light absorption several chemical reaction take place in dyes by proteins molecules.

The degradation of dyes under the influence of light has been the subject of many studies.¹⁴ The photochemical Stability of dyeing depends on

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Topology, Operation and Control of Modular Multilevel Converter for Grid Application: A Review

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Abstract

Modular multilevel converter (MMC) is a widely accepted technology for high voltage direct-current (HVDC) application. Due to its modularity, scalability, power quality, and no need of bulky filter on ac side, they are widely used as voltage source converters in HVDC applications. This paper presents a comprehensive study on MMC technology for grid applications along with different modulation techniques and voltage balancing strategies which are essential for the converter to work as a rectifier or an inverter. The paper provides a general overview of the topology along with the operation of MMC. The main focus of the paper is on the control strategy of the MMC. Out of all the available topologies, the most suitable strategy is discussed and highlighted.

Keywords: Modular multilevel converter (MMC) modulation techniques, circulating current control, high-voltage direct-current transmission, capacitor voltage balancing

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INTRODUCTION

The electric utility industries are undergoing significant changes with respect to its structure, operation and regulation due to the increasing demand of electricity in industrial development, rural development and increasing domestic users. As a result, the traditional vertically integrated structure of the electric utility industry is becoming split into individual generation, transmission and distribution system. Distributed generation incorporates various types of renewable energy sources in the existing system.

To incorporate these sources in the grid brings serious problems, as unbalanced voltages, higher peak and fault current, unnecessary protection and voltage drop in adjacent feeders. The recent development of smart grid system energy conversion technology fully-rated power electronic interface plays a vital role in the generation and transmission system. Over the past few years, there has been a significant effort towards addressing the technical challenges associated with the operation and control of the MMC as well as broadening its applications. A comprehensive review on the most recent advances and contributions on the operational issues,

modeling, operation, control, and modulation techniques and applications of the MMC has been done by Ding *et al.* [1]. Their work also highlights the emerging applications of the MMC and outlines their associated challenges. MMC has become the most attractive multilevel converter topology for medium/high power applications, specifically the voltage-sourced converter high-voltage direct current (VSC-HVDC) transmission system [2–10].

MMC has various salient features over other multilevel converter topology, which includes (i) its modularity and scalability to meet any voltage level requirements, (ii) its high frequency which is of significant importance for high-power applications, (iii) its superior harmonic performance, specifically for high-voltage applications where a large number of identical sub-modules (SMs) with low voltage ratings are stacked up, thereby the size of passive filters can be reduced, and (iv) absence of dc link capacitors. In the last few years, significant efforts have been made towards addressing the technical challenges associated with the operation and control of the MMC as well as broadening of its applications [11–15]. This paper provides a better understanding

Load Frequency Control of an Interconnected Power System under Unequal Loading

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Abstract: This paper present the use of Artificial Intelligent and conventional (PI & PID) controller to study the load frequency control of an interconnected power system under unequal loading. Unequal loading means the percentage change in load side power is not same. In the proposed scheme, control methodology developed using Artificial Neural Network and conventional controller for thermal-thermal and hydro thermal power system. The control strategies guarantee that the steady state error of frequencies and nonchalant interchange of tie-line power are maintained in given tolerance limitations. The performance of these controllers is simulated by using MATLAB/SIMULINK. A comparison of conventional controller and ANN controller based approaches shows the transcendence of proposed ANN based approach upon conventional controller. The simulation results are tabulated as a relative performance in view of settling time and peak overshoot.

Keywords: Load Frequency Control (LFC), ANN controller, Conventional (PI & PID) Controller, Area Control Error, Tie-Line.

I. INTRODUCTION

In power system operation and control for procuring plenty and reliable electric power with good power quality, Load Frequency Control is a very important issue. An interconnected power system can be considered as being divided into control areas, all generators are assumed to form a coherent group [1]. In the steady state operation of power system, the load demand is increased or decreased in the form of kinetic energy stored in the generator prime over set, which results the variation of speed and frequency accordingly. Therefore, the control of load frequency is essential to have safe operation of the power system [2]-[4]. Load Frequency Control (LFC) is defined as, the regulation of power output of controllable generators within a given area in response to change in system frequency, tie-line loading, or a relation of these to each other, so as to sustain the schedules system frequency and /or the established interchange with other areas within predetermined limits [5]. Therefore, a control strategy is needed that not only maintains constancy of frequency and desired tie-power flow but also achieves zero steady state error and inadvertent interchange. Among the various types of load frequency controllers, the most widely employed is the conventional proportional integral (PI) controller. The PI controller is very simple for implementation and gives better dynamic response. But their performances deteriorate when the complexity in the system increases due to disturbances like load variation boiler dynamics [6-7]. Therefore, there is need of controller which can overcome this problem.

The Artificial Intelligent Controller like Neural Network Control approach is more suitable in this respect [8]. The silent Feature of these techniques is that they provide a model free description of control systems and do not require model identification. An ANN controller which is an advance adaptive control configuration is used because the controller provides faster control than the other [9].

An artificial neural network controller for two area interconnected hydro thermal and thermal-thermal plant is proposed to enhance the performance of conventional controller (PI & PID) and neural controller sliding surface is included. The sliding concept arises due to variable structure concept. The objective of VSC has been greatly extended from stabilization to other control functions. The most distinguished feature of VSC is its ability to result in very robust control systems, in many cases it results invariant control system. The term invariant means that the system is completely insensitive to parametric uncertainty and external disturbances [10-11].

II. THE INVESTIGATED POWER SYSTEM

The detailed block diagram modelling of two area thermal-thermal and hydro thermal power system for load frequency control investigated is shown in Fig 1 and Fig 2. An enhanced power system can be echeloned in to a number of load frequency control areas interconnected by means of tie lines, without loss of universality one can consider a two area case connected by single tie line.

ECG Signal Compression Using Standard Techniques

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Abstract: The electrical signal is generated by the heart and it is record by the electro cardiogram, for electro cardiogram (ECG) data compression has been purposed the last three decades. Such techniques have been vital in reducing the digital ECG data volume for storage and transmission. Continuous recording by ECG, So in It record is so voluminous, so it is practically do not to handle it without compression, for transmission purpose , in rural area such excellent cardiologist is not available so the data is send to other cardiologist a large data size takes many time to send, so by compression data size is reduced and take minimum time. The ECG data is compress by some technique DWT, DCT, Wavelet denoising and compression and Huffman coding the data base is taking from MIT-BIH record 104, and tested these technique on MATLAB. The DWT based algorithm gives better result to DCT based algorithm.

Keywords: MIT-BIH record 104, DWT, DCT, Wavelet denoising and compression, Huffman coding.

I. INTRODUCTION

The ECG is a bioelectric signal, which records the electrical activity of human heart. It gives the information to cardiologist about the human rhythm and function of the heart .We knows the information of heart by placing electrode across the chest of human body. ECG signal being used in a wide variety of biomedical applications requires accurate results, less power requirements, faster results and low cost maintenance. Therefore compression plays a very important role in acquiring these purposes without losing the original information [1].

Modern electrocardiogram (ECG) monitoring devices generate vast amounts of data and require huge storage capacity, many ECG compression methods were proposed to process, transmit, and store the data efficiently. They could be classified into the following four categories. 1) Parameter extraction techniques (e.g., linear prediction and neural network methods). 2) Transform-domain techniques (e.g., two dimensional (2-D) discrete cosine transform (DCT), and wavelet transforms). 3) Direct time-domain techniques (e.g., amplitude zone epoch take record data from the MIT-BIH arrhythmia database. To compress the signal are applied technique like DCT, DWT, Quantization and Huffman coding. Transform method converts the time domain signal to the frequency or other domains and analyses the energy distribution. Transformation methods involve processing of the input signal by a linear orthogonal transformation and encoding of the output using an appropriate error criterion. For signal coding (AZTEC), coordinate reduction time encoding system (CORTES), [2].

We reconstruction an inverse transformation is carried out and the signal is recovered with some error. Some other examples of transform techniques are Fourier transform (FT), Fourier descriptor, Karhunen-Loeve transform (KLT), The Walsh transform. The main features of this compression algorithm are the high efficiency and high speed. Compression techniques have been around for many years. However, there is still a continual need for the advancement of algorithms adapted for ECG data compression. The necessity of better ECG data compression methods is even greater today than just a few years ago for several reasons. The quantity of ECG records is increasing by the millions each year, and previous records cannot be deleted since one of the most important uses of ECG data is in the comparison of records obtained over a long range period of time.

II. ECG SIGNAL PROCESSING

The block diagram in Figure 1 presents this set of signal processing algorithms. Although these algorithms are frequently implemented to operate in sequential order, information on the occurrence time of a heartbeat, as produced by the QRS detector, is sometimes incorporated into the other algorithms to improve performance. The complexity of each algorithm varies from application to application so that, for example, noise filtering performed in ambulatory monitoring is much more sophisticated than that required in resting ECG analysis.

Once the information produced by the basic set of algorithms is available, a wide range of ECG applications exist where it is of interest to use signal processing for quantifying heart rhythm and beat morphology properties. The signal processing associated with two such applications—high-resolution ECG and

Feature Based Protein Function Prediction by using Random Forest

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ABSTRACT

Enzymes are proteins that catalyze bio-chemical reactions in different ways and play important roles in metabolic pathways. The exponential rise in sequences of new enzymes has necessitated developing methods that accurately predict their function. To address this problem, approaches have been applied, but are fail for dissimilar proteins that performs the same function. In this paper we present a machine learning approach to accurately predict the main function class of enzymes based on 41 sequence-derived features. Our features can be extracted using freely available online tools. Random Forest has been proven to be a very efficient data mining algorithm. Random Forest reported the best results with an overall accuracy of 72.5% and precision and recall in the range of 65% to 91% and 60% to 86% respectively. Our data sets were taken from PDB.

KEYWORDS: Classification, Functions of Enzymes, Protein, Sequence Features.

1. INTRODUCTION

Proteins were the building blocks of our Life as they are responsible for catalyzing and regulating biochemical reactions, transporting molecules, and they form the basis of structures such as skin, hair, and tendon. The shape of protein is specified by its amino acid sequence. 20 different kinds of amino acid and each amino acid is identified by its side chain which determines the properties of amino acid. Protein passes through different levels of structure during its formation.

The Enzyme Commission (EC), International Union of Biochemistry and Molecular Biology (IUBMB) has created a hierarchical classification scheme based on the biological role of enzymes [3]. The EC number has designated to each enzymes. The six main classes are: (1) Oxidoreductases, (2) Transferases, (3) Hydrolases, (4) Lyases, (5) Isomerases, (6) Ligases.

Three prominent approaches had been widely experimented with: firstly, by using similarity of sequences between the enzymes that belongs to same functional class and secondly by comparing the protein structure [1] [2]. But these methods have been considered inefficient because enzymes are not necessarily similar in sequence and structure that belongs to same functional class they may be change in sequence and structure [5] [4]. In the third approach enzymes where represented using sequence and structure driven features that does not use similarity.

There were certain study that proposes methods from the third category of approaches are found in [9] [8] [6] [7]. References [9] and [8] established that Support Vector Machine (SVMs) is useful for protein function classification showing accuracy from 84% to 96%. In this work, proteins were classified into categories like RNA-binding, homodimer, drug absorption, drug delivery etc. using sequence derived features like amino acids composition, hydrophobicity, polarizability and secondary structure. Reference [12] uses features to represent subtle distinctions in local regions of sequence along with attributes as used in [9]. It applies SVM to predict the main class and report accuracy in the range of 66.02% to 90.78%. Reference [15] is a recent work that uses artificial neural networks to predict enzymes and non-enzymes. An interesting part of this work is set of 41 sequence- derived features that have been extracted from PROTPARAM and EMBOSS PEPSTST tool [14].

In this paper, we represent a new approach to predict enzyme function class using random forest. Random Forest is an ensemble classification and regression approach which is consider unsurpassable in

A novel soft computing method for engine RUL prediction

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Abstract Prognostics is an engineering discipline focused on predicting the Remaining Useful Life (RUL) of a system or a component using raw multimedia (sensor) data. This paper presents a novel machine learning model for this task, which includes a smart ensemble of gradient boosted trees (GBT) and feed-forward neural networks. It incorporates discussions on the poor performance of MLPs and the need of ensemble models. Initial stages of data exploration and pre-processing are also comprehensively documented. Experiments are performed on the four run-to-failure C-MAPSS datasets defined by the 2008 PHM Data Challenge Competition. It concludes by presenting evaluations of multiple prediction models like MLP, SVR, CNN & gradient boosted trees (GBT). Gradient Boosted Trees are efficient in the sense that they produce an encouraging scoring model with minimum effort and also return feature importance information. The proposed method uses stacking ensemble of feed-forward neural networks and gradient boosted trees, as first level learner, and, a single-hidden layer-fully-connected neural network as the meta learner. This ensemble provides better results than any of the models alone or weighted average of their predictions. The proposed method outperforms MLP, SVR, CNN and GBT.

Keywords Multimedia Signals · Soft Computing · Remaining Useful (RUL) · Root Mean Square Error (RMSE) · Gradient Boosted Trees (GBT) · Ensemble · Convolution Neural Network (CNN) · Artificial Neural Networks (ANN) · Support Vector Regression (SVR)

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Compound fault prediction of rolling bearing using multimedia data

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Abstract Catastrophic failure of mechanical systems due to faults occurring on rolling bearing is still a great challenge. These faults, which are of multiple type, are compounded in nature. Vibration analysis of multimedia signals is one of the most effective techniques for the health monitoring of these bearings. A compound fault signal usually consists of multiple characteristic signals and strong confusion noise, which makes it a tough task to separate weak fault signals from them. To resolve the compound fault diagnosis problem of rolling bearings by separation of multimedia signals' (obtained from acoustic or acceleration sensors), ensemble empirical mode decomposition (EEMD) method along with some classifier (like independent component analysis (ICA) technique) has been used to some degree of success. But, they are not found capable of detecting difficult faults existing on small balls of the bearing. In order to solve this problem, we are going to propose a new method based on use of Combined Mode Functions (CMF) for selecting the intrinsic mode functions (IMFs) instead of the maximum cross correlation coefficient based EEMD technique, sandwiched with, Convolution Neural Networks (CNN), which are deep neural nets, used as fault classifiers. This composite CNN-CMF-EEMD method overcomes the deficiencies of other approaches, such as the inability to learn the complex non-linear relationships in fault diagnosis issues and fine compound faults like those occurring on small balls of the bearing. The difficult compound faults can be

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**EFFECT OF 1,3-DISUBSTITUTED PYRAZOL-5-ONE DERIVATIVES,
PHOTO STABILITY OF DYES ON PROTEINS MOLECULES****Amrendra Kumar Singh***
S. Kumar****ABSTRACT**

The photo-stability of dyes, derivatives of 1,3-disubstituted pyrazol-5-one on protein molecule including the relationship between the dye's structure and photostability. The part played by the substituent in pyrazol components was assessed especially those in ortho positions. It has been found that light effect of dyes on protein molecule proceeds according to the mechanism of photo-oxidation. The light effect of dyeing depends on the electron on density of the azo bond on protein molecules. Some substituents in ortho positions to the azo bond increase the dye's photo stability.

Key words:- Pyrazol, azo dyes, photo effect, photo-oxidation

INTRODUCTION

The electronic induction of a molecule takes place by reaction absorption that causes the electronic's transition from an occupied orbital to a higher unoccupied orbital. Transition such as π - π and new wiring the visible range are necessary for a color to occur. The transition of an electron to a higher orbital leads to a configuration that may be characterized by two states the singlet state (anti-parallel electron spin) and the triplet state (parallel electron spins). Electron induced molecules are characterized by different properties than those in the fundamental state due to higher energy (80 to 400 kJ/mole) Electron-induced should be treated as different chemical units with different bond lengths and angles between them as well as having different distributions of electron density.

The induction of the dye molecule is unstable and the molecule can restore its stability by transferring the whole or part of its energy to molecules. The emitting energy by fluorescence or phosphorescence. AS a result of light absorption several chemical reaction take place in dyes by proteins molecules.

The degradation of dyes under the influence of light has been the subject of many studies.^{1,2} The photochemical Stability of dyeing depends on

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Evaluating the factors influencing customer purchase intention in online shopping

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Abstract

The electronic commerce is gaining momentum and the retailing is going online. The customer has changed the way to purchase the goods and services throughout the world. Online shopping allows customers to buy faster, more alternatives and can order products and services with comparative lowest price. Previous studies show that e-commerce prices, customer's buying, customer's privacy and services with comparative lowest price. The present study focuses on factors such as security, credibility, usability and privacy policies as the influencers of online purchase intention. The study shows that the need for security is the most significant factor which influences the purchase intention followed by the credibility of the website.

Keywords: online shopping, customer, electronic commerce

Introduction

Electronic Commerce is a relatively new and emerging business channel, which involves selling and buying goods and services using a technology channel over the Internet. The Internet has changed the way consumers buy goods and services throughout the world. The continuous sales increment in the last few years have indicated that e-commerce has enormous market potential and is likely to increase exponentially in the coming years. The global economy slowdown have compelled manufacturers and entrepreneurs to go for online marketing as it is the cheapest way for advertising and reaching the vast customer base more effectively (Business Insider, 2015). Many companies have transformed or expanded their businesses from traditional physical stores to online stores. Online shopping allows consumers to buy faster, more alternatives and can order products and services with comparative lowest price (Carter & Gargues, 2014). Online shopping provides more satisfaction to online consumers seeking convenience and speed (Yu and Xu, 2007). Rapidly increasing Internet penetration, enhanced security measures, convenience of shopping and number of retailers available are a few factors that are attracting more and more consumers to shop online (Datta & Epandya, 2014). The popular online retailing companies in India are Flipkart, Jabong, TheMart, Myntra.com, Snapdeal, Amazon.com and e-bay.

Literature review

Comparative prices, online shopping, compare prices were influential in internet purchase according to Lerner et al. (2007). Empirical research shows that comparison of the internet is one of factors that influence consumers willingness to buy online (Wang et al., 2005). Research also shows that the information sources, history may influence buyer behavior (Roper, Straub and al., 2008). It is seen that during the purchasing stage, product assessment, sale services and information quality influence and help consumers decide what product they should select, what seller they should buy from (Lerner et al., 2008). (Chen and et al., 2004) found that trust is another important factor

which affects consumer behaviour in online purchase buying behaviour. The most influential factors for online shopping

from prior studies are convenience and time saving (Baskett, Lohani and Johnson, 1999; Bradburn, King and Rao, 2000; Chong et al., 2004). There is always the associated in conducting any online transaction (Lerner and Krone (2007). (Devaraj, Fan, and Kohli, 2008) found that lower transaction costs leads to higher customer satisfaction towards an online shopping website and results in repeat purchase intention. Online trust is one of the most critical drivers that affect the success or failure of online retailers (Prasad and Nayak, 2007). Consumers are not only interested in purchasing products online, but also look for online services. Some companies have online customer services available 24 x 7. It enables customer to ask questions even at business hours, get immediate support or assistance, which has provided convenience to customer (Herman, 2000).

Research methodology

The study was conducted with the objective of finding the factors which influence online purchasing intention. A sample size of 150 people was selected for the study. Out of the total filled in questionnaire only 135 questionnaires were found to be correct and were used for analysis. Convenience sampling procedure was adopted whereas the respondents were approached to get the consent of the researcher. Sampling frame consisted of University students, faculty and staff of the University located in the Jaunpur and Varanasi district of eastern Uttar Pradesh. A pilot study was being done to identify appropriate and convenient questions and to be administered.

Several studies have shown that the intention to buy online is affected by the website usability and quality. A sense of ease friendly interface, website navigation facilities, supports the consumer intention to purchase online (Chen & Froese, 2005). Hence the hypothesis below.

H1: There is a significant positive impact between website usability and online shopping intention. Previous studies show that the Success of the website is the a major

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Sales Promotion and its Impact on Consumer Purchase Decision

Dr Ashutosh Kumar Singh *

Promotion refers to the motivational methods of getting the consumer to purchase the product. Promotion is referred to as "any communication used to inform, persuade, and/or remind people about an organization's or individual's goods, services, image, ideas, community involvement, or impact on society". Promotion (also referred to as Integrated Marketing Communication (IMC)) mainly consists of messages and related media that are used to communicate with the market. The objective of this paper is to study the impact of sales promotion activities on the consumer purchase decision. Consumer sales promotion include a wide range of tools like free sample, coupons, refund premium, sweepstakes, exchange offer etc. The findings show that sales promotion has a positive effect on the consumer decision making process.

Introduction : Integrated Marketing communication like advertising, sales promotion, personal selling, public relation and direct marketing largely impact the consumer purchase decision. Sales promotions have become a vital tool for marketers and its importance has been increasing significantly over the years. In India, sales promotions expenditure by various marketing companies is estimated to be thousands of crore and the emphasis on sales promotion activities by the Indian industry has increased manifold. It includes price offs, free gifts, premium, contest, exchange offer, rebates, sweepstake, buy one get one free, discount, point of purchase, event etc. Sales promotion is a marketing activity that adds to the basic value proposition behind a product (i.e. getting more for less) for a limited time in order to stimulate consumer purchasing, selling effectiveness or the effort of the sales force (Aderemi, 2003). Most marketers believe that a given product or service has an established perceived price or value, and they use sales promotion to change this price/ value relationship by increasing the value and /or lowering the price compared with other components of the marketing mix (Odujami and Ogunsiji, 2011). Consumer buying behaviour however is the process by which the individual search for, selects, purchase, use and dispose of goods and services, in satisfaction of their needs and wants. The consumers' behaviour has a direct effect on the success of the firm and therefore must ensure that they create a marketing mix that satisfies consumers. Previous studies suggest that different market segments and consumer profiles react differently towards sales promotion. Several reasons for the variations in effectiveness were suggested, including demographic, cultural and ethnic differences, the value and timing of promotional offerings, as well as the type of product or service promoted (Ailawadi and Harlam, 2009).

Literature Review:

Promotion plays a vital role in the formation of loyalty and psychological connection between the consumer and the product that create loyalty to the product eventually leading to the success of achieving the objectives of the promotion policy (Mualla, 2006). Sales promotion is sometimes considered as an activity of less importance but companies increasingly realize the importance of having a well planed and structured program for sales promotion. All businesses need to communicate to the consumer what they have to offer

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Analysing the E-Banking Challenges and Opportunities

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Abstract

The banking system has witnessed revolutionary changes all over the globe and India is no exception to it. Banks have been investing huge amount of money to ensure that the penetration of the e banking is spread to all customers. Competition and the constant changes in technology and lifestyles have changed the mode of banking. Banks are seeking innovative ways to provide and differentiate amongst their varied service. ATM's, Internet banking, mobile banking and virtual banking have transcended across the length and breadth of the country. E banking not only reduces the cost of servicing from the bankers point of view but has also been instrumental in providing value added services to the customers. Despite the fact that banks have done lot to increase the e-banking, the penetration is still low due to the fact that the large customer base is from rural areas having poor access to internet. Education level of the customers, security issues also prevents them from using the services. This paper aims to understand and evaluate the factors related to the penetration of the e banking, challenges, opportunities and the perception of the service quality.

1. Introduction:

The Banks are the main participants of the financial system in India. The Banking sector offers several facilities and opportunities to their customers. Currently in most jurisdictions commercial banks are regulated by government entities and require a special bank license to operate. The banking system in India has traversed a long way from the traditional banking to e banking. There are different e-banking channels in practice like online banking, debit card and credit card services, ATM services, home banking, internet banking, tele-banking and mobile banking. Initially the banks focused on developing the commercial web- sites, with the purpose of promoting their products and services using the internet (Stamoullis D S, 2000)¹. With the advent of information technology a new type of digital economy has emerged where innovative ways of providing services

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Evaluating the Influence of Employees' Interaction with Customer on Service Quality

Dr. Ashutosh Kumar Singh *

Service quality is the most vital aspect which needs care to develop long term relations with the customer. It leads to enhance the credibility of the services and eventually ends with customer retention and brand loyalty. The employees of the service provider play a very significant role in creating service quality. The customers evaluate the service quality of any services on several parameters and employees responsiveness and customized care is above all. The present study aims to understand the employees customer interaction and its impact on the overall service quality. The findings shows that the customers have given importance to their interaction with the employees in judging the service quality and that the customers who have availed services for more years have been given more care and support by the employees.

Introduction :

Services are often hard to measure, count or inventory, which hampers the ability to understand how or when customers view a service as top quality. Furthermore, there may be a considerable gap between what a service firm intends to deliver and what a customer actually receives. One approach to managing service quality has been to carefully structure interactions and conversations between employees and customers (Bain et al. 2002, Holtgrewe, Kerst, and Shire 2001; Lovelock 2001). There have been frequent discussions in the marketing literature suggesting that personal relationships can influence the evaluation of goods and services (Beatty et al. 1996; Bitner, Booms, and Tetreault 1990). Communication between employees and customers is termed service encounter or service interaction. Service interactions play indeed a central part in our lives as Ford (2001) stated, "From health care to auto repair to banking, to clerical support, service interactions have become a significant part of our daily routines and the nature of these interactions may dramatically impact our overall quality of life" (Ford, 2001:p1). Each service encounter interaction is considered as performance in which employees must act to show their values to customers (Darvasula et al., 2005). The empowered employees might show the customer-oriented service behavior, because they possess more elasticity and capability to match the changeable need of customers. Researchers who are interested in studying service performance at the individual level of analysis (e.g., Barrick & Mount, 1991, Frei & McDaniel, 1998) have linked employees' personalities to their service performance. As a result of the intangible and interactive nature of services, customers often rely on the behavior of service employees when judging the quality of a service. Consequently, the employees' level of customer orientation is considered an important leverage for service firms' economic success.

Literature Review :

Brown et al. (2002) defined customer orientation as "an employee's tendency or predisposition to meet customer needs in an on-the-job context". Cran (1994, p. 36) introduced a similar concept of customer service orientation, which was defined as a predisposition to provide service and to be courteous and helpful in dealing with customers.

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Analysing the influence of adverting on the consumer decision making process

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Abstract

Advertising has always been the most significant tool of communication for the marketers. Advertising in different media may be disseminate information to the prospective customers about the product and its features using different strategies. Advertising has influenced the buyer behavior as it found in different researches. The present study focuses on the impact of the advertising on the consumer purchase decision and the attitude of customers towards advertisements with demographic profile like age and gender. The findings of the study shows that the customers in the different age group have different feelings towards the advertisements effect. It is also revealed in the study that the customers in the different income class has different attitude towards the impact of the advertisements.

Keywords: advertisements, purchase decision, age, income

Introduction

All the consumers are exposed to heavy dose of mass media (newspapers, television, advertising, videos, films, billboards, music, movies, magazines, and the internet, etc.). Of all marketing techniques used by marketers, advertising is renowned for its long-lasting impact on viewer's mind, as its exposure is much broader (Kotler, 2007)^[1]. The evolution of advertisement dates back into the ancient times. Societies used symbols and pictorial signs to attract their product users. In today's cut-throat competition advertisements have become one of the major sources of communicational tool between the manufacturer and the user of the products. In a study by (Lalji et al., 2011) it was found that the advertising may also create brand choice among the customers. It is also believed by marketers that in the competitive market, differentiation in communication is the only weapon which can develop desire among the customers. The extensive use of celebrities in the advertisements is an attempt to attract those customers who may relate and identify themselves with the celebrity endorsed product and services. Thumous efforts and money is invested in the development of a persuasive and compelling advertisement.

Buying behavior is a process by which a people search for the product/services they need or want, make decision to buy the required and most suitable one from different alternatives, use and the dispose it.

Literature Review

Effective advertisement influences the attitude towards brand and eventually leads to purchase intention (Goldsmith & Lafferty, 2002)^[2]. Morden (1991) is of the opinion that the advertisement is fundamental tool for awareness and dissemination of knowledge of goods and services. Adalar et al. (2003) in their study found that it is not only visual or verbal media content that will affect consumers' purchasing decisions, but rather the way to

which different media formats are integrated or related to each other for maximizing the greatest effect on consumer buying interests and emotional responses. The study predicts positive impact of TV advertisements on consumer attitude towards advertisements, suggest the purchasing, desire for purchasing, women's purchasing and customer's satisfaction (Mohammed Latifah, 2011)^[3]. According to Armstrong (2009) every advertisement strategy focuses on two main characteristics which are targeting and advertisement content of the advertisement. Emotions advertisement is more effective as the customers ultimately give more response to that product (Stratton)^[4] and (Baker & 2005)^[5]. (Gruen et al., 2010)^[6] analyzed the impact of children's attitudes towards television advertisement on their resultant buying behavior. Larwin et al. (2008) also testified that advertising exposure can change consumer preference and attitude and promote purchase intention. Celebrity advertising can transfer a celebrity's attitude and feeling from consumers to a product (Chi, Yeh, & Huang, 2005)^[7]. (Lamb, Holbrook, and Stephen (1993)^[8] and (Lambin et al. (1996)^[9] also testified that advertising exposure rate can change consumer preference and attitude and promote purchase intention.

Research Methodology

The present study uses purchase intention as the dependent variable and advertising as the independent variable. Structured questionnaire is used to collect the responses of the respondents using the survey technique. The sample size of the survey is 150. The sampling area selected for the study is Varanasi and Jaunpur district of Uttar Pradesh. Convenience sampling technique was adopted in this study. The questionnaire was read to the respondents through email and also collected through face to face interaction.

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Evaluating the Role and Impact of Employees in Customer Relationship Management

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Abstract

The significance of the CRM has stood as the most promising and differentiating tool of the service providers. It has been observed that the employees of any service organization play a vital role in casting the image of the organization. The employee's interaction with the customers and their attitude is by far the most significant factor that leads to enhanced service quality resulting in to long term relations. The present study aims to understand and evaluate the customers feelings related to the behavior of the employees. For the purpose of the study the customers of the banks, insurance and the telecom sectors have been selected. The study revealed that the customers of the banks have rated employees high on responsiveness, empathy, problem solving attitude as compared to the insurance and the banking sector.

Introduction:

No business organization can develop and prosper unless it is able to satisfy the customer's. Customer Relationship management is the strongest and the most efficient approach in maintaining and creating relationships with customers. Customer relationship management is not only pure business but also ideate strong personal bonding within people. Development of this type of bonding drives the business to

new levels of success. A CRM system is a business tool that allows you to manage all your customers, partners and prospects information all in one place. The literal and original meaning of the expression "Customer Relationship Management" was simply, managing the relationship with your customer. Today it is used to describe IT systems and software designed to help you manage this relationship. Strong customer relationships come in part from close attention to the employees who make a difference for the company, helping the customer relationship to endure and deepen. Companies focused on relationship marketing need to consider their human resources a key light. Employees, like customers, should be singled out for the value they want and the value they can and will create. Those employees who matter most merit special treatment and individualized care, just as the company's best customers do. The incentives most companies have offered to date are reward and recognition, with the occasional promotion as part of both. But the relationship marketing oriented company does more. The most important link in creating customer value is the employee relationship, so measure the state of the relationship today, (think more broadly than simply measuring employee satisfaction), set relationship quality targets and manage and measure progress.

Literature Review:

The success factors for CRM implementations have been described in many previous publications and have received increasing attention within the literature of CRM. Relationship marketing emphasizes that customer retention affects the company's profitability because it is more efficient to maintain an existing customer relationship than create a new one (Payne et al 1999). CRM initiatives have resulted in increased competitiveness for many companies as witnessed by higher revenues and lower operational costs. Managing customer relationships effectively and efficiently boosts

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Impact of Branding on Consumer Purchase Decision

Dr. Ashutosh Kumar Singh*

Abstract

The primary aim of any marketer is to ensure that their product and services are being recognized as best as compared to its competitor. Branding undoubtedly plays a significant role by providing an edge over others. Branding comprises of Brand Awareness, Brand Associations and Brand Loyalty. The present study aims at understanding the impact of the Branding on the Consumer Purchase behavior which predominantly is determined by the Purchase Intention. Survey technique using the structured questionnaire was adopted to elicit the customer responses. The study revealed that the Perceived Quality, Brand Awareness, Brand Associations and Brand Loyalty significantly correlate with purchase intention and the Brand Loyalty is the vital predictor impacting of Purchase Intention.

Introduction

Brand is a combination of name, symbol and design. Brands represent the customer's perceptions and opinion about performance of the product. "A product can be quickly outdated, a successful brand is timeless" (Quiston, 2004, p 345). Buying behavior of people can be changed by the help of brand name and equity. Brand image develops and conveys the product's character in a different manner from its competitor's image. Existing industries and marketers are constantly realizing and emphasizing that branding is crucially important to their company's existence, as it helps to their respective brand name in the marketplace (Murphy 1988). According to Aaker (1996) brand equity is a set of assets and liabilities that add to (or subtract from) the value provided by a product or service to a firm and/or the firm's customers. Building strong brand enables firms to lower their marketing cost and develop ability to charge premium price for their products. (Gaedebe, 2007) identified brand name, pricing and distributor's reputation are the most important factors to determine brand equity of different models of cars. Brand image is the key driver of brand equity, which refers to consumer's general perception and feeling about a brand and has an influence on consumer behavior. Successful organizations believe that the reputation they have earned through brands is crucial.

Literature Review

Strong brand creates an identity for the company in the market (Yasin et al, 2007). With the increasing proliferation of various brands in the market, consumers tend to make their purchase decisions largely based on brand reputation.

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Is Alcohol Affect Higher Education Students Performance: Searching and Predicting pattern using Data Mining Algorithms

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ABSTRACT

Chronic heavy drinking and alcoholism can have serious repercussions for the learning, and memory. Excessive drinking among college students is associated with a variety of negative consequences that include alcohol poisoning; fatal and nonfatal injuries; blackouts; violence, academic failure; including sexually transmitted diseases, rape and assault; unintended pregnancy; property damage; including HIV/AIDS; criminal consequences and vocational that could jeopardize future job prospects. The present research intends to the student achievement in Higher Education using Data Mining techniques. This real-world data was collected by using performance reports and questionnaires which was collected and analyzed by MCA department, VBS Purvanchal University, India. In this experimental dataset used data set about MCA student on their courses which holds 450 instances. Four Decisions Tree algorithms (BFTree, J48, RepTree and Simple Cart) are applied in this work. The results showed that BFTree algorithm mostly proper to classify and predict student's whose performance is excellent and who's poor during studying the subjects.

Keywords: Data Mining, Questionnaires, BFTree, Drinking and Alcoholism, Chronic.

INTRODUCTION

Data mining sometimes called data or knowledge discovery in databases is the extraction of hidden predictive information from large databases the process of analyzing data from different summarizing and perspectives it into useful information. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases [1].

Educational data mining (also referred to as "EDM") is an area of data mining defined as the scientific inquiry centered on the development of methods for making discoveries within the unique kinds of data that come from educational dataset, and using those methods to better understand students and the settings which they learn in. Prediction has two key uses within educational data mining. In this model it is important for prediction, giving information about to predict student educational outcomes (cf. Romero et al, 2008) without predicting mediating factors or intermediate first. In a second type of usage, prediction methods are used in order to predict what the output value would be in contexts where it is not desirable to directly obtain a label for that construct [2].

This paper presents a new model that enhances the Decision Tree accuracy in identifying student's performance. Four Decision Tree algorithms BFTree, J48, RepTree and Simple Cart are applied. The data set consists of two Comma Separated Values (CSV) files taken from UCI Machine Learning Repository for Students Alcohol Consumption of courses MCA students. The source data set files contained 450 instances with 31 attributes. WEKA 3.6.9 tool is used to implement Decision Trees. In our studies 10-fold cross validation method was used to measure the unbiased estimate of these prediction models with 66% of the tested data.

The organization of this paper is: section two viewed the related works and listed all the models of implementing the algorithms of data mining with education. Section three explained the concept of Educational Data Mining (EDM) briefly. Section four listed and explained the decision trees BFTree, J48, RepTree and Simple Cart which are implemented later in this model. Section five explained the machine learning tool WEKA. Section six listed the decision trees model of steps and results of implementing. The final section concludes the extraction from the whole work.

BACKGROUND

Pandey and Pal [3] conducted a study on new comer students will performer or not on the basis of student performance selecting 600 students from different colleges of Dr.R.M.L. Awadh University, Faizabad, India.



PERFORMANCE ANALYSIS OF STUDENTS CONSUMING ALCOHOL USING DATA MINING TECHNIQUES

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ABSTRACT

Alcohol consumption in higher education institutes is not a new problem; the legal drinking age in the India is minimum 18 year, but heavy drinking by underage students and by those who are age 18 or older is dangerous, and disruptive. Excessive drinking among students is associated with a variety of negative consequences that include fatal and nonfatal injuries; alcohol poisoning; blackouts; academic failure; violence, including rape and assault; unintended pregnancy; sexually transmitted diseases, including HIV/AIDS; property damage; and vocational and criminal consequences that could jeopardize future job prospects. Because students vary widely in their drinking rates, it would be inaccurate to characterize all institutions as having an equally urgent drinking problem. But among students who do drink heavily, the problem is serious: the two out of five students who engage in binge drinking risk a wide range of alcohol-related consequences, including grave injuries and death.

This paper describes four popular data mining algorithms Sequential minimal optimization (SMO), Bagging, REP Tree and decision table (DT) extracted from a decision tree or rule-based classifier to improve the efficiency of academic performance in the educational institutions for students who consume alcohol. In this paper, we present a real-world experiment conducted at VBS Purvanchal University, Jaunpur, India. This method helps to identify the students who need special advising or counseling by the councilors/teachers to understand the danger of consuming alcohol.

Keywords: Alcohol Consumption, Sequential Minimal Optimization (SMO), Bagging, REP Tree, Decision Table.

I INTRODUCTION

India is the third largest market for increase of alcoholic beverages in the world, after Russian Federation and Estonia. During 1992-2012, the per capita consumption of alcohol in India has increased by whopping 55%. (Source: The Indian Express). Heavy drinking is associated with a weaker probability of employment, more absence from work, as well as lower productivity and wages. The overall value of production lost to harmful alcohol use is estimated in the region of 1% of GDP in high- and middle-income countries. Globally, alcohol consumption results in approximately 3.3 million deaths each year (WHO Global Status Report on alcohol and health, 2014). It is the third largest risk factor for disease and disability in the world. In 2010 it was responsible for 4.9 million deaths and 5.5% of the total DALYs lost worldwide, according to Lancet's Global Disease Burden study. Since it is a leading

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An Introduction of Biodegradable Polymers, Modes of Biodegradation and Designing of Biodegradable Polymers

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ABSTRACT:

Biodegradable polymers are a newly emerging field. Biodegradable polymers are useful for various applications in medical, agriculture, drug release and packaging fields. Biodegradable polymers have received much more attention in the last decades due their potential applications in the fields related to environmental protection and the maintenance of physical health. At present only few groups of the mentioned biopolymers are of market importance. The main reason is their price level, which is not yet competitive. The future of each biopolymer is dependent not only on its competitiveness but also on the society ability to pay for it. The future outlook for development in the field of biopolymers materials is promising. To improve the properties of biodegradable polymers, a lot of methods have been developed, such as random and block copolymerization or grafting. These methods improve both the biodegradation rate and the mechanical properties of the final products. Physical blending is another route to prepare biodegradable materials with different morphologies and physical characteristics. To provide added value to biodegradable polymers, some advanced technologies have been applied.

KEYWORDS: Biodegradable polymers; biodegradation and bioerosion, polyesters; polyamides, designing of biodegradable polymers etc.

1. INTRODUCTION:

Biodegradable polymers are a newly emerging field. A vast number of biodegradable polymers have been synthesized recently and some microorganisms and enzymes capable of degrading them have been identified. In developing countries, environmental pollution by synthetic polymers has assumed dangerous proportions. As a result, attempts have been made to solve these problems by including biodegradability into polymers in everyday use through slight modifications of their structures. ^[1]

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<https://10.5958/0974-360X.2017.00121.4>



Research Article

Phytochemical and Pharmacological Investigation of *Hyptis suaveolens* L. in Experimental Models*Dharmendra Singh¹, Anil Kumar Middha²¹Research Scholar, OPJS, University, Churu, Rajasthan, India²Associate Professor, OPJS, University, Churu, Rajasthan, India

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ABSTRACT

Hyptissuaveolens L. Poit is a plant belonging to family Lamiaceae, or the Mint family. The original family name is Labiatae, while this is still considered a suitable alternate name nearly all botanists now use the name "Lamiaceae" in referring to this family. It is also called *Ballotasuaveolens* Linn, (Kirtikar and Basu, 1999). The word *diabetes* is Greek for a draw off, referring to the ejection of a more quantity of urine; and *mellitus* is Latin used for sugar. Consequently diabetes mellitus means the passage of huge amounts of sweet urine. The plant materials (1 kg) were initially defatted with petroleum ether and then extracted with alcohol and water using a Soxhlet apparatus. The yield of the plant extracts ethanol (95%) and aqueous measured about 20 g each after evaporating the solvent using water bath. The standard extracts obtained from *Hyptissuaveolens* L. were then stored in a refrigerator at 4°C for further use for phytochemical investigation and pharmacological screening. Diabetes was induced by intra-peritoneal injection of Alloxan monohydrate (150 mg/kg b.w.) dissolved in the in normal saline (Viana et al, 2004). Blood was withdrawn (0.1 ml) from the tip of the tail of each rat under mild ether anaesthesia. Animals were considered diabetic when the blood glucose level was raised beyond 200 mg/100 ml of blood. This condition was observed at the end of 72 h after alloxanisation.

Keywords: *Hyptis suaveolens* L, Lamiaceae, Alloxan, diabetic, *mellitus*

INTRODUCTION:

The generic *Hyptis* has been derived from Greek word *Hyptios*, laid back or resupinate, referring to the limb of the corolla, which is turned on its back. It is a large genus of about 400 species and is native of warm tropical America.

Table 1:

Vernacular names	
Hindi	Ganga tulsi, ban-tulsi, bilayatitulsi
Bengali	Bilaiti-tulsi
Oriya	Ganga-tulsi, purodo
Telguu	Sima-tulsi, mahavira
French	Gros baume, hyptis à odeur
Spanish	Chao, hierba de lasmuelas, hortela do campo
Portuguese	Joa-de-capote
Guarani	Kamamb

Botanical description

Strong-scented herb to 3 m tall with quadrate hairy, erect, branched stems. When crushed, the plant gives off a characteristic minty smell. The broad leaves are in opposite pairs up the stem, with small mauve flowers in clusters in the upper leaf axils. Leaves, ovate, acute, 3-5 cm long and 2-4 cm wide, the margins serrulate, lower surface densely hairy; petioles up to 3 cm long. Inflorescence, axillary, 3-to 4-flowered clusters, flowers in small cymes, along branch end with reduced leaves. Calyx 5 mm long, in flower, 10 mm long in fruit, corolla 2-lipped, purplish blue. Fruits ribbed enclosed by the calyx. Nutlets about 1.2-1.5 mm long slightly notched at the end." The persistent spiny calyx enclosing the seeds assists with their dispersal by adhering to clothing, fur and wool. The plant gives flowers and fruits in autumn and winter seasons.

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Science awareness helps reduce snakebite mortality at Jaunpur: A study

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Out of 3,000 species of snakes found globally, only 410 species are poisonous around the world. Most of the people believe that all snakes are poisonous, which is a mis-belief. Snakebite is an occupational hazard causing considerable morbidity and mortality worldwide, particularly in tropical countries like India. About 270 snake's varieties in India are reported, while only a few of them are poisonous. Snakebite has been a recurring problem in the society, especially in rural areas, undoubtedly many snakebites cause severe consequences even leading to death. Snakebite is a significant health concern, especially in rural populations of tropical and subtropical countries. Certain beliefs among the members of a society sometimes arise out of fear, helplessness, mis-beliefs or misunderstanding. These are generally referred to as "superstitions." These beliefs have existed since the earliest days of mankind. Many of them have no scientific temper; although they often appear illogical or unreasonable, they are still an integral part of peoples' hearts, brains and minds. In the present study, focused on Baksha Block, District Jaunpur, Uttar Pradesh from 2012 to 2017 on snakebite cases, it was found that most of the peoples were not having a scientific temper, rather they displayed strong mis-belief in superstitions. However, death rate was decreased during 2012-2017 and significant death reduction was observed where the victim had availed medical treatment within 2 to 6 hours. Maximum deaths are observed when people do not avail any scientific method. The results were drawn from questioners administered amongst people (sample size > 30) belonging to different locations. Though, most of them believe in various superstitions, such as going for exorcism, quacks, etc., many of them were able to save lives by taking medical aid due to appropriate education and awareness.

Keywords: Snakebite, Snakebite death, rural people, superstitions, appropriate education.

Introduction

Usually, the reports of snakebites coming especially

from rural areas are alarming. Basically, throughout Asia-Pacific Region snakebite's treatment remained in the domain of traditional, herbal or Ayurvedic

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Emergence and Understanding of Scientific Development from Ancient Divine Literatures of India

Dr. Manoj Mishra

Science and Technology both play important role in the development of human civilization followed by Arts and Literatures. The concept of science arises from the philosophy of world's ancient religion is SANATAN DHARMA like cause and effect, wherever you gave that would be returns to you etc. Thermodynamic principals and Newton's Theory both are based on aforesaid concept, which makes revolution in the field of Physics. We must be remember that the root of all the scientific thoughts/concepts to understand the nature and principals of natures having in our ancient divine literatures viz. Vedas, Upanishads etc. The mysteries of these divine literatures are unexplainable and some time beyond of understanding due to their language (Sanskrit and Indus scripts). Several modern human thinkers and learners fellows are unable to understand to whole concepts of ancient literatures. Meanwhile, the root of Astronomy, Mathematics, Medicine, Archaeology, Science etc. are originate from ancient divine literatures. It is absolutely true for any nations who are in the race of developed countries of the world, must be under the umbrella of Scientific and Technological development. Several thinkers of the world highlighted their views for ancient Indian literatures like Henry David Thoreau said: "In the morning I bathe my intellect in the stupendous philosophy of the Bhagavad Gita, their writings contain many thoughts from Vedic Philosophy. Alfred North Whitehead (British mathematician, logician and philosopher), who stated that: "Vedanta is the most impressive metaphysics the human mind has conceived. Aryan Invasion theory given by Max Muller, the principal architect, admitted the purely speculative nature of his Vedic chronology. The Six Systems of Indian Philosophy, he wrote: "Whatever may be the date of the Vedic hymns. Recently, Indian President Late Dr. A.P.J. Kalam known as Missile Man and who wrote in his book (Wings of Fire) the concept of missile were developed in his mind during childhood from Ramayana. Ancient divine literatures also provide us how to leave a healthy life as a good human beings, Gro Harlem Brundtland is a former Prime Minister of Norway gave the concept of Sustainable development (Our Common Future, also known as the Brundtland Report, from the United Nations World Commission on Environment and Development (WCED) was published in 1987) to the world and this concept make revolution in the field of scientific development, i.e. Sustainable development is the integrated parts of Ethics and Soc'o-scientific development. The ethics are earlier reported in several literatures of India and worlds. Hence, the Scientific development must be sustainable and under the enlightenment of divine literatures. Keywords: Vedic literatures, Vedic science, Modern science, Human development

Introduction : The Vedas deal with knowledge, they cover knowledge both physical and spiritual. They are source of all knowledge according to several literatures (Kargel, R. 1991, Frawley, 1994, Kak, 1986, Raja Ram Mohan Roy, 1999). Especially the Vedic views revolve around the concept of nature and life. The visions of the beauty of life and nature in the Vedas are extremely rich in poetic value. Perhaps nowhere else in the world has the glory of dawn

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जोखिम संचार
जनपद जौनपुर (उ.प्र.) में सर्पदंश जुड़े अन्धविश्वासों के निराकरण हेतु आरम्भिक
प्रयास, परिणाम एवं संस्तुतियाँ

डॉ. मनोज मिश्र *

प्रस्तावना : आम जन-जीवन में साँपों को लेकर बहुत सारी भ्रान्तियाँ एवं अन्धविश्वास प्रचलित हैं, जिसे यदा-कदा, हमारे संचार माध्यम जिरामें प्रमुखतया प्रिन्ट एवं इलेक्ट्रानिक माध्यम हैं, साँपों के बारे में प्रचलित अवैज्ञानिक धारणाओं को और बढ़ावा दे रहे हैं। प्रस्तुत अध्ययन में लक्ष्य क्षेत्र के आम जन-जीवन में सक्रिय सपेसों को स्वयंसेवकों का दायित्व देकर स्थानीय चिकित्सकों के माध्यम से जागरूक करने का प्रयास किया गया है। जिसके चलते लक्ष्य क्षेत्रों में सर्पदंश की घटनाओं में अप्रत्याशित कमी पाई गई।

सर्वेक्षण एवं कार्यविधि : सर्वप्रथम बख्शा विकासखण्ड के उन चयनित क्षेत्रों का सर्वेक्षण कराया गया, जहाँ सर्पदंश से विगत दशक में सबसे अधिक मौते हुई है, हालांकि ग्रामीण क्षेत्रों में सर्पदंश से होने वाली मौतों के बारे में पारिवारिक जन एवं ग्रामीण अपने अन्धविश्वासों के चलते कुछ बताते नहीं हैं। सर्वेक्षण के लिए विकासखण्ड के प्राथमिक स्वास्थ्य केन्द्र में दर्ज आँकड़े, जौनपुर जिला चिकित्सालय से सम्बन्धित आँकड़े ग्राम पंचायतों के ग्राम प्रधानों एवं अन्य सामाजिक कार्यकर्ताओं से जानकारीयों प्राप्त की गई।

स्थानीय सपेसों एवं चिकित्सकों को स्वयंसेवकों के रूप में अवैतनिक नियुक्त किया गया, जिन्हें भारत सरकार द्वारा सर्पदंश प्रबन्ध प्रोटोकॉल 2007 का विधिवत् प्रशिक्षण श्री द्वारिकाधीश लोक संस्कृति एवं वानस्पतिकी विकास संस्थान द्वारा दिया गया। तदन्तर प्रशिक्षित स्वयंसेवकों द्वारा जौनपुर जनपद के बख्शा विकासखण्ड के चयनित स्थानों पर सर्पदंश से बचाव के लिए जन जागरूकता अभियान चलाया गया। उपरोक्त जनजागरूकता अभियान के अन्तर्गत सर्वप्रथम आम लोगों को समाज में व्याप्त तमाम लोक कथाओं, अन्धविश्वासों, मान्यताओं एवं अवैज्ञानिक धारणाओं आदि बिन्दुओं (तालिका-1) से अवगत कराते हुए वैज्ञानिक मान्यताओं को बताया गया।

तालिका-1 :

अन्धविश्वासों का अभिलेखन

- क्रोधी व्यक्ति का ही साँप के रूप में पुर्नजन्म होता है।
- साँप का रास्ते में पड़ना घोर अशुभ मृत्यु योग है।
- साँप के काटने से बचना है तो उसे नाग पंचमी को दूध पिलारें।
- रात में साँप का स्मरण करने से बिस्तर पर साँप आ जाता है।
- मणिधारी साँप का होना।
- इच्छाधारी नाग-नागिन का होना।
- साँप बिन की धुन के बड़े शौकीन होते हैं।
- साँप मारने वाले पूरे घर को सर्प परिवार के लोग बदला लेते हैं।
- सर्प श्राप से सन्तान नहीं मिलती।
- साँप को मारने वाले की फोटो साँप की आंखों में कैद हो जाती है।
- जटाधारी साँप होते हैं, जो कि हजारों वर्ष पुराने हैं।
- साँप हवा में उड़कर हमला करता है।
- साँपों की मणि यदि मिल जाय तो व्यक्ति मालामाल हो जाता है आदि-आदि।

* असिस्टेंट प्रोफेसर जनसंचार विभाग वीर ब्रह्मदेव सिंह पब्लिक रिजिस्ट्रार जौनपुर

Registrar
V.B.S. Purvanchal University
Jaunpur

सूचना देने वाला अभिलेख
कौशाम्बी का बौद्ध विहार घोषिताराम का अभिलेख : नामकरण समस्या

श्री. पदोक्त विषय -

प्रस्तावना : प्रस्तुत आलोचित अभिलेख बौद्ध साहित्य की महत्वपूर्ण सूचना की पुष्टि करता है कि कौशाम्बी के समृद्ध सेठ घोषित द्वारा भगवान बुद्ध के वर्षाफलीन आयार के लिए कौशाम्बी के एक सम्राट उदयन का समकालीन सेठ बताया गया है। नामकरण समस्या विषयक समीक्षा के पूर्व प्रस्तुत अभिलेख के दोनों वाक्यों का देवनागरी रूपान्तरण निम्नोक्त है-

1. भयंतस धरस अंते वासिस भियुस फगुलस।
2. बुधावासे घोषिता रामे सब बुधान पुजाम्मे शिला कारिता।।

विवेचन : प्रस्तुत शोध-टिप्पणी में उस विशेष प्रस्तर-खण्ड से सम्बन्धित कुछ महत्वपूर्ण तथ्यों पर विचार किया जा रहा है, जो इलाहाबाद विश्वविद्यालय के पुरातत्व दल को 1949 के लगभग सुप्रसिद्ध बौद्ध-स्थली कौशाम्बी से प्राप्त हुआ था। आलोचित प्रस्तर-खण्ड के मध्यवर्ती अन्तराल में दो पंक्तियों में निबन्धित एक सुदर्शन अक्षरों में अंकित अभिलेख है, जिसे पुरालिपि-परक एवं स्तरीकरण दोनों ही दृष्टियों से प्रथम शताब्दी ई.पू. के लगभग रखा जा सकता है। उन पूर्वसूरिदा में जिन्होंने इस अभिलेखांकित प्रस्तर खण्ड की विशेष समीक्षा की है, जी.आर. शर्मा, जे.एस. नेगी, ए.एन. देशपाण्डे एवं एस.एन. राय, का विशेष उल्लेख किया जा सकता है। प्रस्तुत टिप्पणी इन विद्वानों के विचारों एवं निष्कर्षों पर मूलतया आधारित है, यद्यपि यत्र-तत्र आवश्यकतानुसार लेखक ने अपने विचारों को भी प्रस्तुत करने का प्रयास किया है।

यहां उल्लेखनीय है कि शर्मा एवं नेगी, इन दोनों ही विद्वानों ने आलोचित प्रस्तर-खण्ड को "आयागपट्ट" की संज्ञा प्रदान किया है। इस सन्दर्भ में यहां प्रसंगित किया जा सकता है कि ब्रुंजर ने ऐसी स्थापना किया है कि "आयागपट्ट" नाम जैन-कला में ही सीमित था। इनके अनुसार न तो बौद्ध-परम्परा में, और न ही पारम्परिक हिन्दू कला में "आयागपट्ट" का प्रसंग मिलता है। ब्रुंजर को सन्दर्भित करते हुए ब्रुंजर ने यह भी कहा है कि बौद्ध-कला में परम्परानुसार ऐसे शिला-खण्डों को "उघपट्ट" (अर्थात् ऊर्ध्वपट्ट) कहा गया है।¹

उक्त अवधारणा के अनुसार प्रस्तुत शिलाखण्ड को "आयागपट्ट" कहना भ्रमक प्रतीत होता है। किन्तु इसके पहले कि शर्मा और नेगी द्वारा प्रस्ताव्य नामकरण को अस्वीकार किया जाए, निम्नोक्त तथ्यों पर ध्यान देना उचित प्रतीत होता है।

निष्कर्ष

1. यह कहना कि "आयागपट्ट" हिन्दू परम्परा के लिए अविदित है, त्रुटिपूर्ण होगा। "आयाग" का मन्दमं रामायण (1.32.12) में मिलता है, जिसे रामायण के टीकाकार ने "यजमानीय देवता" का द्योतक बताया है—अर्थात् उपास्य देवता।
2. अनेकतर "आयागपट्ट" का सबसे नटीक उदाहरण वह शिलाखण्ड है, जो फुडरर को अहिच्छत्र के चत्वरनन से प्राप्त हुआ था। यह शिलाखण्ड एक बौद्ध विहार के अवशेषों में मिला था। इस पर अंकित अभिलेख आठ अक्षरों (द्वितीय शताब्दी ई.पू. के आस-पारा) में है, जिसमें "आयागपट्ट" शब्द प्रसंगित है।² इसके आधार पर यह कहा जा सकता है कि बौद्ध परम्परा के लिए "आयागपट्ट" शब्द अपरिचित नहीं है।

अतिरिक्त प्रोफेसर, जनकपुर विभाग, श्री बालदर सिंह पूर्वांचल विश्वविद्यालय, जौनपुर

Dns

लोककला माध्यम द्वारा विज्ञान एवं प्रौद्योगिकी संचार

डॉ. नवीन विमल

प्रस्तावना : समाज में परम्परागत जन संचार माध्यम जिनमें कि नेत्र, प्रदर्शनीय, मुक्कड़ नाटक, झांझिया, लीलाएँ, प्रहसन, लोकगीत, लोककृत्य, कठपुतली, धार्मिक प्रवचन, लाग, वीथियाँ यदि प्रमुख हैं। भारतीय जन मानस को सदियों से जादोसिद्ध एवं अनुप्राणित करते आ रहे हैं। इन अक्षर पर विना किन्ती प्रचार-प्रसार जो सारी संख्या में जन मनस इन मेलों एवं सांस्कृतिक आयोजनों में जाने सहभागिता पर्व करता रहा है। जहाँ मुद्रित, इलेक्ट्रॉनिक, श्रव्य दृश्य माध्यमों की अपनी सीमा है वहीं पर लोककला माध्यमों की पहुँच असीमित है। ये माध्यम वहीं और भी शक्तिशाली बन बैठते हैं जहाँ साक्षरता कम है अथवा लगभग शून्य है।

इन धार्मिक-सांस्कृतिक अवसरों पर नाटक-नौटंकी, पुतल आदि के माध्यम से वैज्ञानिक संदेशों को आम जनमानस तक सहजता से पहुँचाया जा सकता है। ऐसे अवसरों पर प्रदर्शित की जाने वाली सांस्कृतिक झांझियाँ या प्रदर्शन सदियों से बड़े ही रोचक, मनोरंजनक एवं सशक्त तरीके से जन संवाद की भूमिका का निर्वहन करते चले आ रहे हैं। इन्हीं आयोजनों के जरिये सामाजिक जीवन के विविध पहलुओं का प्रस्तुतिकरण एवं आदर्श जीवन दर्शन का पाठ भी आम जनमानस को पढ़ाया जा रहा है। भारतीय समाज में ऐसे सांस्कृतिक आयोजन इतने गहरे पैठ बना चुके हैं कि इनका कोई सहज विकल्प अभी निकट भविष्य में भी संभव प्रतीत नहीं है।

कुछ सार्थक प्रयास : राष्ट्रीय विज्ञान एवं प्रौद्योगिकी संचार परिषद (NCSTC) ने इनके महत्व को समझते हुए विभिन्न स्तरीय संघर्षों के सहयोग से 1987 में "भारत जन विज्ञान जथा" का आयोजन किया था। जिसमें देश के विभिन्न भागों में ज्यादातर लोककला माध्यमों के द्वारा विज्ञान को जन-जन तक पहुँचाने का प्रयास किया गया। इससे उत्साहित होकर 1990 में "भारत ज्ञान-विज्ञान जथा" का आयोजन किया गया। इसके अतिरिक्त समय-समय पर पिछले दशकों में विभिन्न लोक कला माध्यमों द्वारा विज्ञान को जन-जन तक पहुँचाने के प्रयास किये गये हैं। यद्यपि विज्ञान एवं प्रौद्योगिकी संचार के लिए लोक कला माध्यमों का प्रयोग बहुत पुराना नहीं है तथापि पिछले तीन दशकों से इस क्षेत्र में उत्साहपूर्ण प्रयास देखे जा रहे हैं। राष्ट्रीय विज्ञान एवं प्रौद्योगिकी संचार परिषद, नई दिल्ली के सार्वजनिक शास्त्र साहित्य परिषद एवं श्री द्वारिकाधीश मानसविकी संस्थान जैसी संस्थाओं ने राष्ट्रीय स्तर एवं क्षेत्रीय स्तर पर विज्ञान एवं प्रौद्योगिकी के प्रसार के लिए लोक कला माध्यमों का व्यापक उपयोग किया है, जिसके नतीजे सार्थक एवं उत्साहजनक रहे हैं। राष्ट्रीय विज्ञान एवं प्रौद्योगिकी संचार परिषद द्वारा कठपुतली द्वारा विज्ञान संचार पर एक राष्ट्रव्यापी कार्यक्रम भी चलाया गया है। इसके अलावा स्थानीय/क्षेत्रीय स्तर पर विज्ञान विषयों पर आलेख लिखने, पुतल बनाने और विज्ञान विषयों पर पुस्तक प्रदर्शन आयोजित करने का प्रशिक्षण दिया जाता है।

दृश्य श्रव्य माध्यमों के इस्तेमाल, वैज्ञानिक विषयों पर स्लाइड शो, वाईस्कॉप, पल वैस्कोप, व्याख्यान गोष्ठी, विज्ञान प्रदर्शनी, वैज्ञानिक प्रदर्शनी की झांझियाँ एवं वैज्ञानिक मनोवृत्ति में उत्साहजनक सुधार के चलते लोक कला माध्यमों की उपयोगिता आज और भी बढ़ गयी है।

महत्व : सांस्कृतिक उत्सवों के दौरान लोक कला माध्यमों के जरिये वैज्ञानिक संदेशों के प्रसार से तात्कालिक प्रभाव नहीं पर उपस्थित जन मानस प्राप्त करता है। वहीं उसके दूरव्यापी परिणाम यह होते हैं कि सांस्कृतिक, धार्मिक एवं सामाजिक कार्यक्रमों के आयोजन, संयोजक, आयोजन समिति के सदस्यमण एवं कलाकारों में विज्ञान के प्रचार प्रसार की प्रतिबद्धि विकसित होती है। इससे समाज में आम जनसंगठन (पंच, युवा, युवती) तक विज्ञान एवं प्रौद्योगिकी का प्रसार सुनिश्चित होता है जिससे

* ऑनररी प्रोफेसर, उत्तरांचल विद्यापीठ, वर कानपुर विश्व मुक्ति विश्वविद्यालय, नैसर्ग

Registrar

भरहुत लिपि : अक्षरांकों की समीक्षा

डॉ. पद्मेश मिश्र *

प्रस्तुत जोध पत्र में कुछ एक विषय-विवेचकों के सुझावों की समीक्षा का विषय बनाते हुए भरहुत-लिपि के अक्षर-आकारों को निरक्षित कर उन्हें समीक्षा का विषय बनाया गया है। अहमद हसन दानी ने भरहुत के अभिलेखों को दो वर्गों में रखा है तथा उन्हें लिपि की व्यवस्था के अनुसार इन दो वर्गों में रखते हुए इन्हें भरहुत-I और भरहुत-II की संज्ञा प्रदान किया है। पहले वर्ग के अभिलेख वैदिकाओं पर अंकित हैं। दूसरे वर्ग से सम्बन्धित वह विशेष अभिलेख है, जो तोरण पर अंकित है एवं शुंग-राज्य को संदर्भित करता है। दानी ने तोरणकित अभिलेख की तिथि पर कोई विशेष टिप्पणी नहीं की है किन्तु वे भरहुत-I से सम्बन्धित अभिलेखों को प्रथम शताब्दी ईस्वी के द्वितीय चरण में रखने के पक्ष में है। इनकी अवधारणा के अनुसार इन अभिलेखों की लिपि पमोसा और अयोध्या के अभिलेखों की लिपि की समस्तारीय है। दानी ने इस बात पर भी बल दिया है कि प्रायः पुरालिपि-वेत्ता इस बात पर ध्यान नहीं देते कि आर्ष आकार नवीन आकारों के साथ प्रयुक्त होते हैं। दानी की समीक्षा का बाह्य पक्ष आकर्षक अवश्य है, किन्तु आन्तरिक पक्ष साधनों के साथ ताल-मेल नहीं खाता। इसके अतिरिक्त दानी की यह टिप्पणी भी निरापद नहीं है कि भारतीय पुरालिपि-वेत्ता इस बात को भूल जाते हैं कि अभिलेखों में आर्ष आकारों के साथ-साथ नवीन आकारों के प्रयोग की परम्परा साथ-साथ चलती रहती है। वस्तुतः इस आशय के सुझाव दानी के पूर्ववर्ती (अल्टेकर) एवं उत्तरवर्ती (राय) जैसे पुरालिपिशास्त्रियों ने बार-बार प्रस्तावित कर सम्बन्धित अभिलेखों की लिपि के समय को निश्चित करने का प्रयास भी किया है। इस प्रकार भरहुत लिपि के अक्षर-आकारों के समय को निश्चित करने का जो मापदण्ड दानी ने अपनाया है, उसमें कोई स्वीकारणीय गुरु गभीरता नहीं दिखाई देती है।

भरहुत-लिपि के समीक्षक पूर्वसूरियों में कनिष्क का नाम विशेषतया उल्लेखनीय है। प्रस्तुत विद्वान ने इस बात पर बल दिया है कि इसे 200 ई पू के उपरान्त नहीं रखा जा सकता है। इसमें आर्षत्व की प्रवृत्ति अधिक दिखाई देती है, जो अशोकिया ब्राह्मी का स्पर्श करते हुए चलती है। इस संदर्भ में कनिष्क ने सौची-लिपि की ओर हमारा ध्यान आकर्षित किया है। यदि तुलनात्मक दृष्टि से देखा जाय तो अपेक्षाकृत भरहुत-लिपि में आर्ष अक्षरों की प्रवृत्ति दिखाई देती है। ऐसी स्थिति में भरहुत-लिपि के सौची-लिपि की अपेक्षा कुछ पहले रखने में कोई हानि नहीं दिखाई देती है।

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Jaunpur

स्वास्थ्य पत्रकारिता : लोक वास्तविकता परीक्षण

डॉ. वनेश शर्मा

प्रस्तावना : आज भारत की आबादी रोज़ रोज़ के आँसू के पार कर रही है। ऐसे में स्वस्थ होने का जन स्वास्थ्य के मुद्दे पर स्वास्थ्य पत्रकारिता का महत्त्व बढ़ गया है। जिस नयी बीमारियों से आज का मांस धँसित है। जागरूकता के लिए सुदूरबीन क्षेत्रों के आम-जन तक स्वास्थ्य पत्रकारिता के ज़रिए सर्वसुलभ लोक वास्तविकता का प्रचार-प्रसार सुनिश्चित कर समाज के प्रत्येक नागरिक को स्वस्थ रख जा सकता है। भारत की मूल शिक्षा नीति 1988 में भारत के पहले प्रधानमंत्री पं. जवाहर लाल नेहरू ने आम आदमी तक वैज्ञानिक मनोवृत्ति को प्रसार की पुरजोर वकालत की थी, आज यह देखकर खुदर लगता है कि देश के सर्वोच्च मीडिया घराने अपने सम्मानित पत्रों में साप्ताहिक रूप से स्वास्थ्य पत्रकारिता के ज़रिये आम जनमानस को विभिन्न रोगों के प्रति जागरूक एवं सही दिशा में उन्मुख करने के लिए जगमगी दे रहे हैं!

हमारी संस्कृति की आर्ष वाणी रही है कि "विकित्सन्ता पुष्य रामो न किञ्चित् अर्थात् विकित्ता से बचकर कोई पुष्य नहीं है। श्री मद्भागवद् गीता में वर्णित है कि

"न त्वहं कर्मणे शप्यं, न स्वप्नं नापुनर्नमम्। कर्मणे सुखतपानां प्राणिनामर्षिं नान्नमम्।"

(मुझे न तो स्वर्ग की कल्पना है, न स्वप्न सिंहासन की चकल और न ही पुनर्जन्म की कल्पना रखता हूँ। मेरी मन्त्रकामना यह है कि मैं सुख और कष्ट से घिरे प्राणियों के काम आ सकूँ और उनका दुःख मिटा सकूँ।)

मानव स्वास्थ्य, समुचित जीवन शैली, पोषक आहार, रोगों की प्रकृति की जानकारी देना और नये-नये विकिरणकारी अनुसंधानों से जन-जन को परिचित कराना स्वास्थ्य पत्रकारिता का मूल उद्देश्य है। हमारे प्राचीन वैज्ञानिकों-मनीषियों के उद्घोष सर्वे भवन्तु सुखिनः, सर्वे सन्तु निरुमकः, सर्वे भद्रानि पश्यन्तु, मा कश्चिद् दुःख माकृ भवेत्।। इसी स्वास्थ्य पत्रकारिता से सार्थक होगा। आज प्रकृता है कि देश के समाचार पत्र एवं हल्लेखनिक मीडिया बहुत ही सुबोध, सरल एवं बोधगम्य रूप से अपने पाठकों तक स्वास्थ्य सम्बन्धी जनकारियों को अपने समाचार पत्र एवं चैनलों के ज़रिये पहुँचा रही है। गौरवशाली अतीत : भारत के दो महान विकित्सकों चरक एवं सुश्रुत ने समूची दुनिया को लोक वास्तविकता से परिचित कराया। चरक ने जहाँ लोक वास्तविकता के औषधीय गुणों को वहीं सुश्रुत ने प्लास्टिक सर्जरी की जानकारी देकर भारत का भरतक सदा सर्वदा के लिए पूरे विश्व में उठा दिया है। पत्थर का निर्दहन करते हुए सम्म-रुग्ण पर जीपक, वाग्मदट, नागार्जुन एवं मावन्निश जैसे नए प्राचीन विकित्सकों ने लोक वास्तविकता के इस ज्ञान को और आगे बढ़ाते हुए आम प्रकृति जैसे नए नए कण्डों से जन-जन तक लोक वास्तविकता के गुणों से परिचित कराने में अपनी महत्वपूर्ण भूमिका अदा की है। प्राचीन भारत के महान विकित्सक जीवक कीण्वर शूद्र या एक प्रसंग बौद्ध एका अभम के में मिलता है कि जब तक्षशीला में अध्ययन के दौरान उनके आचार्य ने उनसे कहा कि अभम के अरु-यसो जगत् म देव कोई भी लाओ जिसमें कोई औषधीय गुण न हो। देर शा। जोकके औषध दूय ने अपने आचार्य से कहा कि मुझे ऐसा कोई भी पौधा नहीं दिखता जिसमें कोई औषधीय गुण न हो। आचार्य ने जीवक से कहा कि आज से तुम्हारी शिक्षा पूरी हुई अब तुम वैद्य हो, जहाँ तक जन-वास्तविकता के उपयोग से जन मानस के समस्त रोगों का उपचार करो। भारत देश को एक और गौरव प्राप्त है कि एक सर्वज्ञ के अनुसार देश में आज ही करीब 50 हजार वैद्य-पंडित जनवास्तविकता के औषधीय गुणों से युक्त हैं।

लोक वास्तविकता : हमारे सुदूरबीन क्षेत्रों/गोठों में 'खर विरहया' के नाम से हर आदमी को परिचित कई नई बीमारियाँ हैं जो मानव स्वास्थ्य के लिए प्राचीन काल से संजीवन का काम करती रही हैं। उनके ही लोक वास्तविकता कहा जाता है। जिन्होंने आज तौर पर छोटी-मोटी बीमारियाँ तक बहर-रणी, लघु-सम्बन्धी बीमारियाँ, घट-घट, जोड़ के घट, बुकाम, पीलिया सम्बन्धी बीमारियाँ

Dns

भरहुत-अभिलेखों में प्रयुक्त स्थान वाचक नाम

डॉ. मनोज मिश्रा

मध्य प्रदेश के सतना जिले में स्थित भरहुत का प्राचीन भारतीय इतिहास के अंश में महत्वपूर्ण योगदान है। भरहुत से प्राप्त अभिलेखों की एक लम्बी श्रृंखला से द्वितीय शताब्दी ईसा पूर्व की धार्मिक, सामाजिक एवं आर्थिक गतिविधियों की जो बौकी-झौकी मिलती है उसमें सामान्यता भारतीय जीवन के सार्वभौम स्वरूप एवं विशेषतया मुगकालीन जीवन की प्रतिष्ठा है।

वह विस्तृत नगरी मूलतः मैहर उपात्यका के सीमान्त में स्थित थी जहाँ पर उज्जैन-विदिशा में मार्ग पाटलिपुत्र की ओर मुड़ता था तथा कौशाभी एवं श्रावस्ती की दिशा में भी राजमार्ग जाता था। इसके स्थानीय स्थिति के महत्व को समझाकर ही यहाँ पर एक स्तूप का निर्माण हुआ था जिससे बर्तमानों का ध्यान इस ओर आकर्षित हो सके। उक्त सम्भावना के संकेतक प्रचुर अभिलेखिक साक्ष्य मरुत की वेदिकाओं से संलग्न है जिनमें दानकर्ताओं के नाम तो अकिता ही है, इसके अतिरिक्त इन दानकर्ताओं के स्थान विशेष का भी साथ-साथ अंकन हुआ है। इन अभिलेखों से ध्वनित होगा कि भरहुत स्तूप के दर्शन एवं सम्मान के लिए भिक्षु-भिक्षुणी तथा सामान्य लोग विभिन्न स्थानों से आते करते थे। भरहुत के अभिलेखों में प्रयुक्त स्थान-वाचक नामों में कुछ एक की निश्चित पहचान की जा चुकी है एवं कुछ एक की अनुमान परक पहचान की गयी है। ऐसे स्थान वाचक नाम जिनकी निश्चित पहचान की जा चुकी है उनमें से कुछ एक का वर्णन निम्नवत है -

1. करहकट : समकतः कर्हाड, जो सतारा जिले में कोल्हापुर से लगभग पैंतालिस किलोमीटर दूरत में स्थित है। इसे कर्हाड भी कहते थे, जो शीलहार वंश की एक शाखा की राजधानी के रूप में अस्तित्व में था।

2. कोसंबी (संस्कृत कौशाभी) : इसकी पहचान आधुनिक कोसम नामक गाँव से की जाती है, जो इलाहाबाद से दक्षिण-पश्चिम यमुना नदी के तट पर स्थित है। महापरिनिब्वानसुत्त से ज्ञात होता है कि बुद्ध के काल में यह उत्तर भारत का एक प्रसिद्ध नगर था। यहाँ वत्स वंशीय शासकों की राजधानी प्रतिष्ठित थी।

भरहुत से प्राप्त एक अभिलेख में अंकित है -

"कोसंबेयकथ भिक्षुणिया देनुपभिवीयाय धमारखिता या दानं"

अर्थात् कौशाभी में वेणुव्यापण की रहने वाली भिक्षुणी धर्मरक्षिता का दान।

3. नासिक : इसकी पहचान गोदावरी के तट पर स्थित आधुनिक नासिक से की जाती है। यह नगर बुंदई से लगभग 121 किलोमीटर उत्तर-पूर्व की ओर स्थित है। इसकी प्रसिद्ध तीर्थ-स्थान के रूप में है। पुरातत्व की दृष्टि से भी इस प्रसिद्ध माना जाता है। यहाँ अनेक अभिलेखों से ज्ञात होता है।

4. पाटलिपुत्र (संस्कृत पाटलिपुत्र) : इसकी पहचान आधुनिक पटना से की जाती है। मौर्य साम्राज्य की राजधानी होने का भी इसे सूचक मिला था। इसकी स्थापना मगधराज अजातशत्रु ने लगभग 483 ईसा पूर्व में किया था। इसका विस्तृत विवरण सूत्रानी यात्री मेगस्थनीज ने दिया है। चन्द्रगुप्त मौर्य (चतुर्थ शताब्दी ईसा पूर्व) के शासन काल में आया था। यहाँ उत्खनन कार्य के समय में विद्यमान था। उक्त नगर के इतिहास से ज्ञात होता है कि यह स्थान पहले एक गाँव पाटलिपुत्र के रूप में विद्यमान था। उक्त नगर के इतिहास से ज्ञात होता है कि उक्त गाँव का "नगरस्थान" नाम की आक्रामक गति-विधि को रोकने के लिए किया गया था।

5. पुरिका : हरिवंश (निष्कण्डन XXXVIII 20-22) के अनुसार यह नगर विन्ध्य पर्वत की दो पहाड़ियों के बीच स्थित था। पुराणों के मुकानकेश स्रष्ट में पुरिका निवासियों को पौरिक अथवा पौरिक

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हिन्दी के वैश्विक प्रसार में हिन्दी समाचार पत्रों की भूमिका

डॉ. जयशंकर मिश्र

वैश्विक प्रसार का अर्थ है किसी समाज के अन्दर समाज के अन्दर... हिन्दी के वैश्विक प्रसार में समाचार पत्रों की भूमिका... हिन्दी समाचार पत्रों की भूमिका... हिन्दी समाचार पत्रों की भूमिका...

वैश्विक प्रसार का अर्थ है किसी समाज के अन्दर समाज के अन्दर... हिन्दी के वैश्विक प्रसार में समाचार पत्रों की भूमिका... हिन्दी समाचार पत्रों की भूमिका... हिन्दी समाचार पत्रों की भूमिका...

वैश्विक प्रसार का अर्थ है किसी समाज के अन्दर समाज के अन्दर... हिन्दी के वैश्विक प्रसार में समाचार पत्रों की भूमिका... हिन्दी समाचार पत्रों की भूमिका... हिन्दी समाचार पत्रों की भूमिका...

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Examining the Relationship between Work-Family Conflict, Job Satisfaction and Employee's Turnover Intention

Pankaj Tripathi and Manoj Kumar Pandey

ABSTRACT

Work-family conflict is becoming more common now a day due to work pressure and family responsibilities. Work-family conflict can have effects on employee's job satisfaction and turnover intention besides other common factors. In this setting, this study holds the aim of examining the relationship between work-family conflict, job satisfaction and turnover intention on Manufacturing Organization and second objective of this study see the work-family conflict impact on job satisfaction leading to turnover. The Sample size selected for this study is about 128 participants that are employees working in the Indian private Manufacturing Organization. Results indicate that negative relationship between work-family conflict and job satisfaction. It is also found that work-family conflict positively related with turnover intention. This study is limited towards the sample size and in the future, the researcher can expand the sample size in order to explore new factors or dimension related to work-family conflicts, employee job satisfaction and turnover intention. This study plays a significant role for managers because it can help in identifying strategies through which managers can increase employee job satisfaction and reduce employee's turnover intention.

Key words: Work-Family Conflict, Job Satisfaction, Employee's Turnover Intention.

1. INTRODUCTION

1.1 Work-Family Conflict

Persons working at different places often express pressures from their families and at work because these two areas are incomparable in various aspects. In the field of literature Work-Family conflict is commonly defined as a form of inter-role conflict in which participation in one role conflicts with participation in another role (Greenhouse

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https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Examining+the+Relationship+Between+Work-

A Feasible Method for Blurbing Higher Education Institute

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Abstract: In the last few decades, large number of Higher Education Institute grows. This creates a competition among these institutions to attracting the students for admission in their institutions. One of the best ways to reach the students is advertisement. In this paper, our focus is on advertisement which is economically feasible because the most of institutions are opened in self financial mode. Now a day a number of advertisement methods are available and our focus is on social networking sites like facebook, Ourkut, twitter and mobile application like WhatsApp. In this paper, we use Apriori Algorithm which explores support and confidence method to find out the best way of advertisement by using Weka Tools.
Keyword: Apriori Algorithm, Support, Confidence.

attract students because most of the peoples are not using modern method of advertisement like WhatsApp, facebook, twitter, Messenger etc.

Table 1: Number of Occurrences of advertisement methods

Advertisement method	Code	Answer
WhatsApp	W	800
Facebook	F	650
Twitter	T	230
Messenger	M	435

1. INTRODUCTION

Data mining is a promising research field for educational data analysis. There are many data mining techniques such as clustering, classification, prediction, support, confidence and outlier analysis can be used for the purpose of analysis. Business world used data mining technique to find out the interest group for its product from a large number of consumers. No doubt they got satisfaction from data mining. This successful implication of data mining motivates researcher of education to use this technique due to rich data set.

In last few years Indian Higher Education Authorities focuses on opening self fund generating institution. In early days, these institutions easily attract students, who are seeking for admission; sometimes without any making special effort to attract them [1]. But increased number of self finance Higher Education Institute has faced a lot of trouble in attracting student. To solve this problem Higher Education Institute started thinking about some method to attract student by advertisement which is economically feasible.

2. DATA DESCRIPTION

The data is collected from different colleges situated in Jaunpur and Ghazipur district of U.P (India). So data is first collected on Questionnaire paper i.e. Name, mobile no., facebook id, WhatsApp no., Gmail id and twitter id. Collected data is stored on database for further analysis. In this Questionnaire one section is very important which provides data for analysis i.e. advertisement method by which he or she came to know about college facilities, fee structure and other details?

Data Analysis

In last few years college uses traditional methods like hording, news paper, pamphlets radio of advertisement to

3. DATA MINING

Data mining, knowledge discovery and machine learning are used in same context. They contains algorithm to find best pattern from an unstructured data with the help of computers. These algorithms attempt to fit a model to the data. The algorithms examine the data and determine a model that is closest to the characteristics of the data being examined [2].

Apriori Algorithm:

The Apriori algorithm is one of the most widely used tools for association rule mining. It uses priori knowledge of frequent item set property for association rule mining [3].

- In first step algorithm simply counts singleton items are the candidates and the items that has the support value less than a threshold value is eliminated from the candidate item list.
- In the second step algorithm the singleton items are combined to form two member candidate item set and support value less than threshold value is eliminated from the candidate item list.
- In the next step algorithm creates three member candidate item set and the process is repeat again. When all frequent item sets are accounted then the process stops.
- The frequent item sets are then used to generate association rules which have confidence values greater than or equal to the threshold value.

Support:

The support of an item (or a set of items) is the percentage of transactions in which that item occurs. It is defined as "the support (s) for an association rule $X \rightarrow Y$ is the percentage of transactions in the database that contain XUY ."

Security of Grid Computing: A Cryptographic Approach

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ABSTRACT

Now a days, Grid Computing is becoming very popular, because of its ability to provide information and services that are distributed across several control domains. A grid performs some distributed computations to achieve their goal. But the problem is that, how much a grid is secure in distributed environment. Is there any security breach is possible? If yes, Then how it can be prevented? In this paper, we are trying to solve such questions.

General Terms

Grid Computing and its security. Cryptographic techniques, Grid Security algorithm

Keywords

Grid Computing, Grid Security, Cryptography: Symmetric & Asymmetric, GRAM, OGSA, RSL, SOAP, RA.

1. INTRODUCTION

The term "Grid Computing" is used to represent the collection of more than one computational machines and resources distributed globally to perform problem solving computations. There are two terms as GRID and COMPUTING. A grid is a collection of hardwares and softwares put together to achieve consistent and inexpensive computational capability, and Computing is the procedure followed by that architecture to solve any specific problem. This technology is becoming very popular due to its availability at very low cost. But there are security issues are arises when grids are made available for computation of network users.

In this era, the world wide communication media, Internet provides more convenient way to the peoples to communicate, although they are far away with each other. Internet is a widely used network which is shared to all. Hence security is going very important issue, if we are using Internet to communicate sensitive data and information.

There are different methods and techniques are available to perform secure communication. One of those are Cryptographic algorithms. The cryptography is considered as the branch of both Computer Science and Mathematics. Cryptography is an art of insuring security and is a study of securing or hiding information. Cryptography is widely used in current technological applications such as ATM transaction, Internet Banking and many more. Currently due to demonetization of old currency, the Indian economy is going towards cashless, where different technologically advanced application will take place, which all will be cryptographically armed for insuring confidentiality and security. The security of information is preserved with the help of cryptographic algorithms.

The cryptographic algorithms are categorized into two types as: Private Key Cryptography sometimes known as Symmetric Key Cryptography, and Public Key Cryptography, also known as Asymmetric Key Cryptography. Here we are proposing an algorithm which is symmetric key cryptographic algorithm for securing information which is to be transmitted over world wide.

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2. CRYPTOGRAPHY

The step by step procedures followed to ensure security of information is known as cryptographic algorithm. All these algorithms work in two phase as : Encryption phase and Decryption phase. The information that can be read and understand easily without any special effort is known as plain text. The process of converting plain text into unreadable form to hide and secure information is known as encryption and hidden form of information is known as cypher text. The process to gain back plain text from cypher text is known as Decryption. All these encryption and decryption processes are used to achieve the following goals:

2.1 Authentication

This term is used to identify or authenticate both the peer entity that is supposed to receive information and the data origin entity from where the information is to be send. Digital signatures and digital certificates, used to provide authentication.

2.2 Access Control

The prevention of unauthorized use of resources is termed as access control. Access control mechanism allows only authenticated users to use information or resources.

2.3 Data Confidentiality

The protection of data from unauthorized disclosure is called data confidentiality. There are four levels of data confidentiality as:

2.3.1 Connection Confidentiality

The protection of all user data on a single connection is known as connection confidentiality. The whole connection is made confident in connection confidentiality. Data must be sent via that confident connection to ensure confidentiality.

2.3.2 Connectionless Confidentiality

In this, the protection is performed on all user data in single data block and then can be transmitted over any connection.

2.3.3 Selective Field Confidentiality

In selective field confidentiality, the protection takes place only on selected fields of information.

2.3.4 Traffic Flow Confidentiality

The traffic flow confidentiality ensures confidentiality of the information that might be derived from observation of traffic flow.

2.4 DATA INTEGRITY

Data integrity is an assurance that the data which is received must be exactly same as sent by an authorized entity. Data integrity may be of different kind as:

- Connection Integrity with recovery, which detects any unauthorized modification on entire data sequence with recovery attempt.

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Information Security: New Cryptographic Approach

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Abstract

In this era, human beings are becoming more powerful because of their ability to share their knowledge and information with each other, though they are very far geographically. This becomes possible only with the help of some communication network, and this network is shared to all. Now, the most important issue that will arise is the security of those knowledge and information from them who are sharing the communication network but not assumed to know that information. So, here we are proposing a method to hide our information from whom it is not supposed to know, even if those can capture hidden form of knowledge.

The term **Cryptography** is used to achieve security of information with the help of some algorithms, known as **Cryptographic Algorithm**. Now-a-days, there are basically two types of cryptographic algorithms are used as : Private key Cryptography and Public Key Cryptography. Here we are proposing a new private key cryptography, that will be very useful for information security.

Categories & Subject Descriptor:

[Cryptography & Network Security]: A New Cryptographic Algorithm.

Keywords: Information Security, Cryptography: Symmetric & Asymmetric.



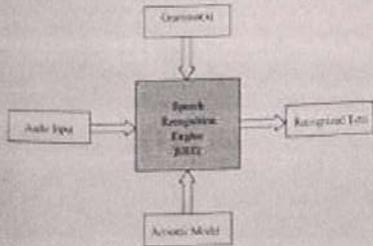
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ध्वनि के भौतिक गुण और वर्तमान हिंदी वाक्-से-पाठ प्रणाली

देवेंद्र कुमार मिश्र

ध्वनि के भौतिक गुण (जैसे: उतार-चढ़ाव, तीव्रता और उठराव) ये ऐसे कारक होते हैं जिनके प्रयोग से वक्ता द्वारा बोले गए कथन का अर्थ परिवर्तित हो जाता है। मनुष्य द्वारा बोले गए वाक् को जब मनुष्य के द्वारा सुना जाता है तो मनुष्य इन भौतिक कारकों को भी सुनता और अर्थगत रूप से समझता है परन्तु क्या जब ये वाक् कंप्यूटर द्वारा सुना जाता है तो क्या कंप्यूटर भी इन भौतिक गुणों को समझता है। प्रस्तुत शोध पत्र में ध्वनि के भौतिक गुण और वर्तमान हिंदी वाक् से पाठ प्रणाली की समीक्षा की गयी है।

वाक्-से-पाठ प्रणाली (Speech-to-Text-STT) /स्वचालित भाषा की पहचान प्रणाली (Automatic Speech Recognition/Computer Speech Recognition) का विकास पिछले कुछ वर्षों से काफी तेजी से होता आ रहा है। वाक्-से-पाठ प्रणाली (Speech-to-Text-STT) के अंतर्गत हम बोली गयी ध्वनि तरंगों को पाठ के रूप में निरूपित करते हैं। वाक्-से-पाठ प्रणाली में कंप्यूटर को ध्वनिग्राही यन्त्र (Microphone) द्वारा इनपुट के रूप में ध्वनि देते हैं और कंप्यूटर के रूप में शब्द या शब्द समूहों को देता है (1)। ऊपर दिए गए ब्लॉक डायग्राम में यह स्पष्ट है कि स्पीच रिकग्निशन इंजन (SRE) का कार्य काफी जटिल होता है। स्पीच रिकग्निशन इंजन (SRE) प्राकृतिक ध्वनि (Raw Audio) को इनपुट की तरह प्रयोग करता है और इस इनपुट तरंग को पहचान कर संबंधित अक्षरों में ऐसा परिवर्तित करता है कि एप्लीकेशन सॉफ्टवेयर इन अक्षरों को समझ सके। इनपुट के रूप में ध्वनि देने तथा आउटपुट के रूप में शब्द या शब्द समूहों के प्राप्त होने की प्रक्रिया को हम तकनीकी आधार पर निम्न रूप से प्रदर्शित कर सकते हैं-



चित्र: वाक्-से-पाठ प्रणाली

प्राकृतिक ध्वनि (Raw Audio) जिसे हम स्पीच रिकग्निशन इंजन (SRE) को इनपुट के रूप देते हैं उसमें केवल स्पीच डेटा (What was said) ही नहीं होता है अपितु उसके साथ वातावरण की ध्वनि (Background Noise) भी शामिल होती है। यह वातावरण की ध्वनि शब्दों के पहचान करने की क्रिया में बाधा उत्पन्न करती है इसलिए स्पीच रिकग्निशन इंजन (SRE) में केवल स्पीच डेटा को स्वीकार करने की क्षमता होती है। इस कार्य को करने के लिए स्पीच रिकग्निशन इंजन स्पीच डेटा के सभी अनुमानित प्रकार को पहचानने के साथ समय तथा आवृत्ति की सांख्यिकीय विधि और सॉफ्टवेयर अभिकलन का प्रयोग करता है। स्पीच रिकग्निशन इंजन का सबसे पहला काम ऑडियो सिग्नल को प्रोसेस कर के व्याकरणिक दृष्टि (Grammar) से तथा ध्वनिक मॉडल (Acoustic Model) के आधार पर आगे प्रयोग में लाने के लिए सबसे उपयुक्त फॉर्मेट में रखा जाता है। जब इनपुट सिग्नल सबसे उपयुक्त फॉर्मेट में हो जाता है तो SRE उस ऑडियो के लिए सबसे उपयुक्त सम्बंधित शब्द का चयन करता है और उस शब्द को एप्लीकेशन सॉफ्टवेयर को आउटपुट के रूप में दे देता है।

सुप्रासेगमेंटल फीचर: वक्ता द्वारा किसी शब्द के उच्चारण के दौरान प्रयोग किये गए वाह्य बल का प्रयोग करना जिससे ध्वनि के भौतिक गुणों (ध्वनि की प्रबलता, स्वरमान और उच्चारण में लगने वाला समय) में परिवर्तन हो जाये सुप्रासेगमेंटल फीचर कहा जाता है। किसी वाक् के उच्चारण में सुप्रासेगमेंटल फीचर का प्रयोग कर देने पर उसके अर्थ में भी परिवर्तन की संभावना होती है। अर्थ में परिवर्तन श्रोता पर आधारित होता है।

उतार-चढ़ाव, तीव्रता और उठराव के आधार पर हिंदी भाषा में विराम चिन्हों के चयन कि संभावनाएं वर्तमान में हिंदी भाषा के लिए उपलब्ध स्पीच रिकग्निशन इंजन मानक सामान्यीकृत लेखन निरूपण (Standard Normalized Orthographical Representation- SNOR) के रूप में आउटपुट देते हैं जो कि केवल शब्द या शब्द समूह के रूप में होता है इसमें किसी भी प्रकार के चिन्ह या विराम चिन्ह सम्मिलित नहीं होते हैं। अन्य भाषाओं में उपलब्ध

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Some more solutions of Kadomtsev–Petviashvili equation

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ABSTRACT

The aim of this paper is to obtain the exact solutions with the help of similarity transformations method for Kadomtsev–Petviashvili (KP) equation in (2+1)-dimension. As a consequence of the first reduction of the KP equation through similarity transformations method, it has been transformed into the Boussinesq equation. Repeated use of the method leads to an ordinary differential equation (ODE). Solutions of such ODEs and hence solutions of KP equation contain arbitrary function and constants. Appropriate choices of the function and constants explore the doubly solitons, multisolitons, parabolic and travelling wave nature to validate our solutions physically.

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1. Introduction

1.1. Scope

The purpose of this research is to bridge a gap between the previous researches which has been made to solve the (2+1)-dimensional KP equation since 1978 [1] to till date. The KP equation is widely discussed in the mathematical community since last four decades. Also, the equation is one of the most universal models in non linear wave theory. We have got some more exact solutions of the following form of KP equation using an efficient technique i.e., similarity transformations method for solving the non linear partial differential equation (PDE)

$$u_{xt} + a u u_{xx} + a u_x^2 + b^2 u_{xxx} + c^2 u_{yy} = 0, \quad (1.1)$$

where $u = u(x, y, t)$ is a function of three variables x, y and t which are respectively the longitudinal, transversal and spatial coordinates, while subscripts are used for partial derivatives.

Furthermore, it is imperative to review some historical background [2] of the KP equation. It was introduced in 1970 by Boris Borisovich Kadomtsev and Vladimir Iosifovich Petviashvili. The KP equation was derived when Kadomtsev and Petviashvili were studying the evolution of long ion-acoustic waves with small amplitude propagating in plasmas under the effect of long transverse perturbations. The equation describes the evolution of non linear, long waves of small amplitude with slow dependence on the transversal coordinate. It is a generalization of Korteweg–de Vries (KdV) equation. The KP equation is a universal integrable system in two spatial dimensions. There are two distinct forms of the KP equation which can be described as KP I equation, if $a = 6, b^2 = 1, c^2 = -3$ are taken in Eq. (1.1), it models thin films waves with high surface tension, while for $a = 6, b^2 = 1, c^2 = 3$ the equation is known as KP II equation which models water waves with small surface tension.

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Soliton solutions of KD system using similarity transformations method

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ABSTRACT

Present article deals with some exact solutions of $(2 + 1)$ -dimensional system of coupled Konopelchenko–Dubrovsky equations. Similarity transformations method is proposed to seek the solution of the system using Lie group theory. The Lie group theory is a very strong tool by which complicated, nonlinear partial differential equations under the group transformations remains invariant. A brief review of Lie symmetries of a system of partial differential equations has been described. During the process, method reduces the number of independent variables by one. Hence, the system of partial equations reduces into a new system of ordinary differential equations. In addition, the infinitesimals after first reductions are more general than the previous established results by us (Kumar et al., 2016). Consequently, solutions so derived are more general than previously known results. We have obtained nine solutions in the explicit form, some of them are more general and some are new for the best knowledge of us. Ultimately, single solitons, multi solitons and shocks behaviour is represented graphically through the numerical simulation for physical validation of the results.

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1. Introduction

It becomes significant to seek the exact solutions of nonlinear partial differential equations (PDEs). The mechanism of a natural phenomenon is usually described by nonlinear PDEs and hence the methods for extracting closed form solutions became more useful and led to much demanding in life sciences and mathematical physics such as fluid mechanics, bio fluids, soliton theory, acoustics etc. [1–39]. To contribute for the development of such kind of research in different contexts, many researchers [1,5–16,18,19,21–30] across the globe found solutions of the following form of the $(2 + 1)$ -dimensional system of Konopelchenko–Dubrovsky (KD) equations:

$$u_t - u_{xxx} - 6b u u_x + \frac{3}{2} a^2 u^2 u_x - 3v_y + 3a u_x v = 0, \quad (1.1a)$$

$$u_y = v_x, \quad (1.1b)$$

where $u(x, y, t)$ and $v(x, y, t)$ are the amplitudes of the relevant waves along the running coordinates x and y respectively. The letter involved in subscript makes sense for partial derivative. In Eq. (1.1a), nonlinearity occurs due to presence of the

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Effect of Processing Gain Variation on Optical Interleave Division Multiple Access at Minimum Loss Optical Window Using Random Inter-leaver

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Abstract- This article contains the effect of processing gain, which is efficient parameter for direct-sequence spread spectrum communication on performance of optical IDMA system. As we know the qualities of IDMA as only means for user separation, mitigates efficiently with multiple access interference (MAI) and Inter symbol Interference (ISI) etc. The output of optical signal at the receiver of the O-IDMA system

The user specific inter-leaver play energetic role in the efficiency of IDMA system. Existing multiple access technique used in 1G/2G/3G system has maximum data rate is nearly 72 Mbps [1-4]. In 4G system we must require more data rate as compared to 72 Mbps. CDMA system used frequently in wireless communication has its own

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