



**SHRIMATHI DEVKUNVAR NANALAL BHATT
VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)**
OWNED AND MANAGED BY CORK INDUSTRIES CHARITIES TRUST
(Affiliated to the University of Madras and Accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.

CRITERION III - RESEARCH, INNOVATION AND EXTENSION

3.4.3 Number of research papers in the Journals notified on UGC website during the last five years

LIST OF RESEARCH PUBLICATION – 2018-2019

S.No	Title of the Paper	Name of the author/s	Department	Name of the Journal	Link
1	Pandaya Tamlar Yebireiya Panppatu Oppaivu	Dr.A.Suganthi Annathai	Tamil	Shanlax International Journal of Tamil Studies	VIEW
2	Tholkappiyathozhi	Dr.S.Chenjulakshmi	Tamil	Shanlax International Journal of Tamil Studies	VIEW
3	Ellaperu Vazhuthi Unarthum Vazhviyal	Dr.Padamvilasini	Tamil	Literary Findings	VIEW
4	Akanaanutril Neithal Nila Makkalin Vazhviyal	Dr.D.Kanaja Devi	Tamil	Literary Findings	VIEW
5	Natrinai kaatum vaazhviyal nerikal	Dr. P. Radha	Tamil	Literary Findings	VIEW
6	Pazhamozhi unarthum vaazhviyal	Dr.A.Suganthi Annathai	Tamil	Literary Findings	VIEW
7	Kalithogaiyil vaazhviyal koorugal	P. Vijaya Rani	Tamil	Literary Findings	VIEW
8	Illakkiyagkalil Manaiyaal	Dr.S.Maheswari	Tamil	Literary Findings	VIEW
9	Numerical Solution of PDE Using Two Dimensional Chebyshev Wavelet Collocation Method	S.Hemalatha	B.Sc Mathematics	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	VIEW
10	A coefficient inequality of mth root transformation associated with Bazilevic fnctions	R.Vijaya	B.Sc Mathematics	Far East Journal of Mathematical Sciences(FJMS)	VIEW
11	Independent transversal domination number in some regular graphs	K Priya Bhanthavi	B.Sc Mathematics	Advances and applications in mathematical sciences	VIEW
12	On (p,q)-Quantum Calculus Involving Quasi- Subordination	S.Kavitha	B.Sc Mathematics	Advances in Algebra and Analysis	VIEW



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13	Structure determination and quantum chemical analysis of Chalcone derivatives	S. Lakshmi.	BSc., Physics	Journal of Molecular structure	VIEW
14	Structural, thermal and electrical characterization of ferroelectric single crystal: Guanidinium cobalt sulphate heptahydrate	A. Rajeswari	B.Sc Physics	International journal of chemtech research	VIEW
15	Growth and characterisation of non linear optical single crystal Guanidinium tris Cadmium Sulphate Octahydrate	A. Rajeswari	B.Sc Physics	Asian Journal of Chemistry	VIEW
16	Trace level determination of t-butyl alcohol and t-butyl chloride by GC in dolasetron mesylate	S. Niranjani	B.Sc Chemistry	Journal of the Indian Chemical Society	VIEW
17	Performance Analysis of Mfcc on Voice Recognition System	M. Santhanalakshmi	B.Sc Computer Science	Journal of Analysis and Computation	VIEW
18	A Smart Green Data Center of Energy Conservation in Cloud and Mobile Cloud Computing	C.P.Sumathi	B.Sc Computer Science	International Journal of Computer Sciences and Engineering	VIEW
19	Optimized Information Hiding Using Discrete Wavelet Transform and Genetic Algorithm	C.P.Sumathi	B.Sc Computer Science	International Journal of Computer Sciences and Engineering,	VIEW
20	Towards the Future Generation of Mobile Cloud Computing	C.P. Sumathi	B.Sc Computer Science	Journal of Computational and Theoretical Nanoscience	VIEW
21	Image Classification and Change Detection of Water bodies in Satellite images using different Vegetation Indices	R.Radha	B.Sc Computer Science	IJRECE	VIEW
22	A Braille Transliteration on Tamil Vowels and Consonants Text Image	G.Gayathri Devi	B.Sc Computer Science	International Journal of Applied Engineering Research	VIEW
23	Technique for Conversion of Text Document into Grade 2	G.Gayathri Devi	B.Sc Computer Science	International Journal of Applied Engineering Research	VIEW



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	Braille Script				
24	Comparative Analysis Of Image Denoising Techniques For Enhancing Real-Time Images	K. Chithra	B.Sc Computer Science	International Journal of Computer Engineering & Techno-logy (IJ CET)	VIEW
25	Analysis of Templates Matching for Human body Parts Recognition	S. Gomathi	B.Sc Computer Science	International Journal of Computer Engineering and Technology(IJ CET)	VIEW
26	A survey on agriculture and greenhouse monitoring using IoT and WSN	M. Lavanya	B.Sc Computer Science	International Journal of Engineering and Techno-logy	VIEW
27	Feature Extraction Of ECG Signal Using Adaptive Decomposition - Discrete Wavelet Transform Technique (AD-DWT)	E. Ramya	B.Sc Computer Science	Interna-tional Journal of Mechanical and Produc-tion Engineering Research and Develop-ment (IJMPERD)	VIEW
28	A Cross Sectional Study on Knowledge, Attitude and Practice of Type 2 Diabetes Mellitus Subjects about Diabetes	T. Sivapriya	B.Sc. Clinical Nutrition and Dietetics	Journal of Krishna Institute of Medical Sciences University	VIEW
29	Identification, isolation and elucidation of compounds from fraction of methyl hydroxyl chalcone polymer from aqueous extract of Cinnamomum Zeylanyicum.	T. Sivapriya	B.Sc. Clinical Nutrition and Dietetics	Asian Journal of Pharmacy and Pharmacology	VIEW
30	Image Classification and Change Detection of Water bodies in Satellite images using different Vegetation	G. B. Hema Malini	BCA	IJRECE	VIEW
31	An Assessment of Customer's Perceptions of E-Commerce	V. Jayanthi	B.Com	Eurasian Journal of Analytical Chemistry	VIEW
32	A study on employee perception of retention strategies with reference to software industry in India	Mahisha Sura Mardhini	MA HRM	Man in India.97(22)	VIEW
33	Changing and unchanging of eccentric domination number in	Sudhasenthil	M.Sc.Applicable Mathematics	International journal of pure and applied mathematics	VIEW



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	graphs				
34	Changing and unchanging of split and non split eccentric domination number of graph	S. Sudhasenthil	M.Sc.Applicable Mathematics	International of emerging technology and innovative research	VIEW
35	Complementary Tree Domination in Subdivision graphs.	P.Vidhya, S.Jayalakshmi	M.Sc.Applicable Mathematics	Journal of Emerging Technologies and Innovative Research	VIEW
36	A computational and spectroscopic interpretation (FT-IR, FT-Raman, UV-vis and NMR) with molecular docking studies on 3-carboxy-2-hydroxy-N, N, N-trimethyl-1-propanaminium hydroxide: A pharmaceutical drug	P.Manjusha	M.Sc Physics	Chemical Data Collections	VIEW
37	Lemon peel guided sol-gel synthesis of visible light active nano zinc oxide	T.Preethi	M.Sc Chemistry	Journal of Environmental Chemical Engineering	VIEW
38	Ecofriendly, green tea extract directed sol-gel synthesis of nanotitania for photocatalytic application	T. Preethi	M.Sc Chemistry	Journal of Materials Science :Materials in electronics	VIEW
39	Analysis On Level Of Awareness In E-Waste Management System Among Chennai Householders	M.Mahadevi	M.Sc Computer Science	IJRAR	VIEW
40	Analysis On Level Of Awareness In E-Waste Management System Among Chennai Householders	N.Priya	M.Sc Computer Science	IJRAR	VIEW
41	Household Methods and Challenges for Food safety	Renu Agarwal	M.Sc FSND	ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH (AJMR)	VIEW
42	Factors Influencing Brand Shift Among Telecom Consumers	T. Anitha	<u>M.Com</u>	International Journal of Research and Analytical Reviews	VIEW
43	An Assessment of Customer's Perceptions of E-Commerce	S.Subbulakshmi	<u>M.Com</u>	Eurasian Journal of Analytical Chemistry	VIEW

பண்டைய தமிழர் - எபிரேயப் பண்பாடு ஒப்பாய்வு

முனைவர் அ.சங்கர்த் அன்னத்தாய்

உதவிப்பேராசிரியர், தமிழ்த்துறை
எஸ்.டி.என்.பி மகளிர் வைணவக் கல்லூரி
குரோம்பேட்டை, சென்னை

முன்னுரை

‘கல்தோன்றி மண்தோன்றா காலத்தே வாளொடு முன்தோன்றிய மூத்தகுடி’ என்ற பெருமையைத் தன்னகத்தே கொண்டது தமிழ் இனமாகும். அப்பழம் பெருமைமிக்க இத்தமிழர் பண்பாட்டோடு, உலகத்தோற்றத்தின் போது படைக்கப்பட்ட மனித குலத்தின் வழியில் வந்தவர்களுள் ஒரு பிரிவினராகக் கருதப்படும் எபிரேயர் பண்பாட்டை ஒப்பிடுவது சாலப் பொருந்தும் என்ற நோக்கில், இவ்வாய்வுக் கட்டுரை அமைய உள்ளது. இவ்விரு பண்பாட்டிடையே காணப்பெறும் ஒருங்கியல்புகள், தமிழ் இனம் உலகம் முழுமைக்கும் பரவியிருந்தமைக்குச் சான்றாக அமையும் வகையில் இவ்வாய்வு முயற்சி மேற்கொள்ளப்பட்டுள்ளது. ஒப்பாய்வு முறையில் அமைய உள்ள இவ்வாய்விற்குத் தமிழர்களின் பண்பாட்டுக் கருவூலமாகத் திகழும் செவ்விலக்கியமும் எபிரேயப் பண்பாட்டுக் கூறுகள் சிதறிக்கிடக்கும் விவிலியமும் முதன்மை ஆதாரங்களாகக் கொள்ளப் பெறுகின்றன.

மலர்: 3

சிறப்பிதழ்: 8

மாதம்: மே

வருடம்: 2019

ISSN: 2454-3993

பண்பாடு

ஒரு குறிப்பிட்ட நாடு, இடத்தைச் சேர்ந்த மக்களின் மதம், மொழி, கலைகள், சிந்தனை வெளிப்பாடு, பழக்கவழக்கங்கள், நம்பிக்கைகள், புழங்கு பொருள்கள் போன்றன அந்நாட்டு மக்களின் பண்பாட்டிற்குள் அடங்கும். “தமிழர் பண்பாட்டின் அமைப்பொழுங்கானது அடிப்படையில் இரண்டு அம்சங்களைக் கொண்டதாகும். ஒன்று, அதனளவில் சார்புடையது (culture dependent). மற்றொன்று, உலகளாவிய அமைப்பியல்புகளோடு பொருந்தக்கூடியது (culture independent). அதாவது, தமிழ்ப் பண்பாட்டின் உருவகத்தைத் தரக்கூடிய ‘புறக் கூறுகள்’ பண்பாடு சார்ந்தும், அவற்றின் ‘அகக் கூறுகள்’ உலகளாவிய அமைப்புகளோடு ஒத்திசைவு பெறுவதும் இதன் உட்பொருளாகும்.”¹ ஏன பக்தவத்சல பாரதி குறிப்பிடுகிறார்.

உலகத் தோற்றம்

உலகம் ஐம்பூதங்களால் நிறைந்தது என்பதைப் பண்டைய தமிழ் மக்கள் நம்பினர்.

“நிலம் தீ நீர் வளி விசம்போ டைந்தும்

கலந்த மயக்கம் உலகம்”

(தொல். பொ.635)

“மண் திணிந்த நிலனும்

நிலம் ஏந்திய விசம்பும்

விசம்பு தைவர வளியும்

வளித் தலைஇய தீபும்

தீ முரணிய நீரும் என்றாங்கு

ஐம்பெரும் பூதத்து இயற்கை”

(புறம் 2 1-6)

தொல்காப்பியத் தோழி

முனைவர் சி.செஞ்சுலட்சுமி

உதவிப் பேராசிரியர், தமிழ்த்துறை
எஸ்.டி.என்.பி மகளிர் வைணவக் கல்லூரி
குரோம்பேட்டை, சென்னை

முன்னுரை

சங்கத்தமிழ் நுவலும் காதலும், வீரமும் மேன்மை பொருந்தியன. இவற்றுள் காதலைப் போற்றிப் பல்வேறு இலக்கியங்கள் தோன்றின. இலக்கியம் கண்டு அதற்கு இலக்கணம் இயம்பலின் என்றதனால் இலக்கியங்களுக்கான வரையறையை வகுக்க இலக்கண நூல்கள் பல தோன்றின. அவற்றுள் முதன்மையானதும் காலத்தால் அழியாததும் எல்லாக்காலத்திற்கும் ஏற்ற நூலாகத் திகழ்வது தொல்காப்பியம். இத்தொல்காப்பியத்தில் இலக்கியத்திற்கு மட்டும் அல்லாது இலக்கிய மாந்தர்களுக்கும் இலக்கணம் வகுக்கப் பட்டுள்ளது. அவ்விலக்கிய மாந்தர்களுள் தோழிக்கு வரையப்பட்ட இலக்கணம் குறித்துக் கூறுவதாகத் "தொல்காப்பியத் தோழி" என்னும் இக்கட்டுரை அமைந்துள்ளது.

மலர்: 3

சிறப்பிதழ்: 10

மாதம்: மே

வருடம்: 2019

ISSN: 2454-3993

தோழி

தலைமக்களது காதலுக்கு உறுதுணையாகவும் அவர்களுக்குப் பக்கபலமாகவும் இருப்பவள் தோழி. தோள் போன்றவளும் தோழமை நிறைந்தவளும் தோழி." சூழ்தலும் உசாத்துணையும் நிலைமையில் பொலியுமே" என்ற தொல்காப்பிய வரிகளுக்கேற்பத் தன்னுடைய தோழியாகிய தலைவிக்காகத் தானே களத்தில் இறங்கித் தலைவன் குறித்து உசாவி அவர்களது காதலுக்காக எத்தகைய சூழலையும் சமாளிக்கும் திறன் வாய்ந்தவளாகத் திகழ்கிறாள். மேலும் "தோழி தானே செவிலி மகளே" என்று தோழி செவிலியின் மகள் என்ற உண்மையை உணர்த்தியது தொல்காப்பியம். செவிலி மகளாக இருந்தால் மட்டும் சிறந்த தோழியாக முடியாது." பயின்றோர் எல்லோரும் தோழியர் ஆகார். அருமறை கிளக்கப் படுதலான் உடன் முல்ல உண்டு வளர்ந்த செவிலி மகளே தோழி" என்று தோழிக்குத் தொல்காப்பிய வழி அழகாகவும் ஆழமாகவும் விளக்கம் தந்துள்ளார் இளம்பூரணர். எனவே தோழி என்ற வலிமை வாய்ந்த ஓர் ஆள் இல்லையெனில் தலைமக்களது காதலும் இல்லை அவர்கள் காதல் குறித்த இலக்கியங்களும் தோன்றியிருக்காது என்றே கூறலாம். தோழி தலைவியின் காதல் வாழ்க்கையாகிய களவியலிலும் கரணம் முடிந்த வாழ்க்கையாகிய கற்பியலிலும் நீங்காத இடம் பெற்று இலக்கிய உலகில் மட்டுமல்ல இன்றைய உலகிலும் தோழமையின் மேன்மையை உணர்த்தி வருகிறாள்.

காதலறியும் பாங்கு

பாலதாணையால் இருவேறுபட்ட தலைமக்களின் உள்ளங்கள் ஒருப்படுதலே காதல். ஆனால் இருவரோடு முன்றாவதாக அவர்களின் உள்ளக்கிடக்கையைத் தானாகத் தெரிந்து கொண்டும், குறையுற உணர்ந்தும், இருவரும் உள்வழி அவன் வரவு உணர்ந்தும் செயல் படுபவள்

தோழி. அது
எல்லாவற்றும்
தான் தன்னை
தோழியின்
"ஆழ்
தான்

என்ற தெ
படுத்தலும்
நயப்பித்த
நிற்பதும்
நிகழ்வுகள்
தோழி. அ
18க்கும்
"பெரு
காதலை
"அச்சு
குறிப்பால்
படுத்திக்
நின்று
எல்லா நி

உளவியல்

உளம்
சிந்தனை
என்பதை
தோழி த
காரியங்க
காதலை
நெறிமு
உளநிலை
தான்

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என்கிறது

இளம்பெருவழுதி உணர்த்தும் வாழ்வியல் விழுமியங்கள்

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சங்க இலக்கியங்கள் உலக மக்கள் நன்னெறியுடன் வாழ வழி காட்டுவனவாக அமைந்துள்ளன. மனிதனை மனிதனாக்கிய பெருமைக் கொண்ட தமிழ் மொழியில் தோன்றிய சங்க இலக்கியங்கள் காதலையும் வீரத்தையும் மையமாகக் கொண்டு படைக்கப்பட்டாலும் பழந்தமிழ் நாட்டின் அரசியல் நிலையும் சமுதாய நிலையும் அறிதற்குப் புறநானூறு பெரிதும் துணைபுரிகின்றது. அன்று புவியாளும் வேந்தரும் புலமைப் பெற்று - கல்வித் திறன் மிக்கவர்களாகத் திகழ்ந்தனர். புறநானூற்றில் புலவர்கள் மட்டுமின்றிப் பல்வேறு மன்னர்கள் பாடிய பாடல்கள் இடம்பெற்றிருந்தாலும் கடலுள் மாய்ந்த இளம்பெருவழுதியின் “உண்டாலம்...” பாடல் தனிச்சிறப்புடையது. மக்கள் எக்காலத்தும் பின்பற்றி வாழத்தகுந்த கருத்துக்களைப் பொதுவியல் திணை வாயிலாக ஆசிரியர் எடுத்துரைக்கிறார். இப்பாடல் சமூக வளர்ச்சிக்கும் ஆக்கத்திற்கும் உதவி வாழ்வியலுக்கு முதன்மையானதாகவும் எல்லோராலும் கடைபிடிக்க தக்கதாகவும் அமைந்துள்ளது. தன்னலம் கருதா பிறர் நலம் பேணும் புதுமை நோக்கில் அமைந்துள்ள வாழ்வியல் விழுமியங்களை இப்பாடலின் வாயிலாக ஆய்வதே இக்கட்டுரையின் நோக்கமாகும்.

விழுமியம் பொருள்

விழுமியத்திற்கான வரையறையாக மானுடவியல் அறிஞர்கள் கூறும் பல்வேறு கருத்துக்கள் அதன் புரிதலுக்குத் திறவுகோலாக அமைகின்றன. விழுமியம் என்ற சொல் கடமைகள், ஒழுக்க நெறிகள் எண்ணங்கள் நம்பிக்கைகள் போன்ற பல்வேறு வகையான மானிட உணர்வுகளைக் குறிப்பதாகும். “ஒரு பண்பாட்டைச் சேர்ந்தோரின் வாழ்வியலுக்கும் செயல்பாடுகளுக்கும் நடத்தை முறைக்கும் எவை எவை அவசியம் என்று கருதப்படுகிறதோ அவையே பண்பாட்டு விழுமியங்கள். மக்கள் அனைவரும் கூட்டாகச் சேர்ந்து வாழ முற்படும்போது எவை எவை எல்லாம் இன்றியமையாதது எனக் கருதப்படுகின்றதோ அவை பண்பாட்டு விழுமியங்கள்” என பக்தவத்சல பாரதி விளக்குகிறார்.

அறநெறி வாழ்வு

மனிதன் தன்னகத்தே வரையறுத்துக் கொண்ட ஒழுக்க நெறிகளின் தொகுதியே வாழ்வியல் நெறியாக விளங்குகிறது. அறம் என்பது வாய்மை நெறியில் வாழ்வதும் தூய்மை நெறியில் ஒழுகுவதுமாகும். அறத்திற்கு Ethics என்ற ஆங்கிலச் சொல்லை இணைப்பதில் சொல்லாகக் கூறுவர். Ethics என்ற சொல்லுக்குப் பழக்கவழக்கங்கள், மனநிலை, குணம், சிந்திக்கும்முறை என பல பொருட்கள் வழங்கப்படுகின்றன. ஒருவர் குடும்ப வாழ்விலும் பொதுவாழ்விலும் முறையாக வாழ்ந்து மற்றவருக்குத் தன்னாலான முடிந்த உதவிகளைச் செய்வதே அறமாகும். நல்லொழுக்கமே அறம் என கூறுகிறது ஆசாரக்கோவை.

கடலுள் மாய்ந்த இளம்பெருவழுதி

பாண்டிய மன்னர்கள் கடாரம், சாவகம், ஈழம் போன்ற நாடுகளுக்குக் கடற்படையோடுப் போருக்குச் செல்வது வழக்கம். அவ்வாறு அரசிளங் குமாரனாகிய இளம்பெருவழுதி கலத்தில் செல்ல அக்கலம் கவிழ்ந்து கடலில் மூழ்கி இறந்ததால் கடலுள் மாய்ந்த இளம்பெருவழுதி என பெயர் பெற்றான். அவன் தான் வாழ்ந்த காலத்தில் சான்றோரின் இயல்பை வியந்து பாடியப் பாடல் இன்றும் என்றும் சமூகத்திற்குப் பொருந்தி நிற்கிறது. இது புறநானூற்றில் 182 ஆவது பாடலாக அமைந்துள்ளது. இப்பாடலில் பிறருக்காக முயற்சி செய்பவர்களால் மட்டுமே உலகம் இன்றளவும் நிலைத்து நிற்கிறது என்ற பொதுவானக் கருத்தைப் பொதுவியல் திணை வாயிலாக கூறப்பட்டுள்ளது.

“உண்டா லம்மவின் வுலக...” என்று இவ்வுலகம் நிலைப் பெற்று விளங்குவதற்கானக் காரணத்தைத் தம் பாடல் வழி ஆய்கிறார் ஆசிரியர். இந்நில உலகமானது இப்பொழுதும் இயங்கிக் கொண்டிருக்கத் தன்னலம் கருதாச் சான்றோர்களைக் காரணம் என்று அறுதியிட்டுக் கூறுகிறார். இன்று சமூகத்தில் ஒவ்வொருவரும் தன்னைப் பற்றி மட்டுமே சிந்திக்கின்றனர். பெரிய நிறுவனங்களின் பொருளாதாரச் சரிவுக்கும் வீழ்ச்சிக்கும் தனிமனிதனின் இத்தன்னலமே காரணமாகிறது. சமுதாயம் நன்கு திகழ மக்கள் பொதுநலன் உடையவர்களாக மாற வேண்டும். மக்கள் பொய், பொறாமை இல்லாத நற்பண்பு உடையவர்களாகத் திகழ வேண்டும். இதனையே,

அகநானூற்றில் நெய்தல் நில மக்களின் வாழ்வியல்

*முனைவர் து.கனகஜாதேவி, M.A.,B.Ed.,M.Phil.,Ph.D, உதவிப்பேராசிரியர், தமிழ்த்துறை (சுயஉதவிப்பிரிவு), எஸ்.டி.என்.பி. மகளிர் வைணவக்கல்லூரி, குரோம்பேட்டை.

முன்னுரை

சங்க காலத்தில் மக்களின் வாழ்வியல் முறையானது நில அடிப்படையில் அமைந்தது. அந்நிலப்பகுதியானது குறிஞ்சி, முல்லை, மருதம், நெய்தல் என அமைந்து அதன் ஒழுக்கலானுகளான புணர்தல், இருத்தல், ஊடல், இரங்கல் என்று முறையாகப் பின்பற்றப்பட்டது.

“முல்லையும் குறிஞ்சியும் முறைமையில் திரிந்து

நல்லியல் பிழந்து நடுங்கு தயருறுத்து

பாலை என்பதோர்ப் படிவம் கொள்ளும்”

(சிலம்பு)

என்ற வரிகள் பிரிவை உணர்த்தும் பாலைக்கென்று தனி நில வரையறை இல்லை என்பதை உணர்த்துகிறது. இவ்வாறு நில அடிப்படையில் அமைந்த சங்ககாலத் தமிழரின் வாழ்வியலில் கடலும் கடல் சார்ந்த நெய்தல் நில வாழ்வியலை அகநானூறு எவ்வாறு படம்பிடித்துக் காட்டுகின்றது என்பதை எடுத்து உரைப்பதாக இக்கட்டுரை அமைந்துள்ளது.

இலக்கியத்தில் நெய்தல்

சங்கத் தலைமக்கள் கடலில் நீராடி மகிழ்ந்தனர் என்பதைப் பல்வேறு இலக்கியங்கள் பதிவு செய்கின்றன. இயற்கைப் புணர்ச்சியில் தலைவன் தலைவி இருவரும் கடலில் நீராடி மகிழ்ந்தனர், பிறகு தலைவன் தலைவியின் ஈரம்பிடித்த கூந்தலினை ஐந்து பகுதிகளாக பிரித்துத் தலைவன் உலர வைத்தான் என்ற செய்தியினை நற்றிணைப் பாடல் (ப.எண்.96) பதிவு செய்கின்றது.

நெய்தல் நிலத்தில் தலைவி, அந்நிலத்தில் உப்பளங்களில் காணப்படும் நெய்தல் நில மலர்களைப் பறித்தும், கடல் அலையில் வரும் நுரையினைத் தெளித்தும் தலைவனுடன் கடலில் நீராடி மகிழ்ந்தாள் என்பதை குறுந்தொகைப் பாடல் (ப.எண்.144) வாயிலாக அறிய முடிகின்றது. இவ்வாறு கடல் சார்ந்த நெய்தல் நில மக்களின் வாழ்விடங்கள் அமைந்த தன்மையை

“மாயோன் மேய காடுறை உலகமும்

சேயோன் மேய மைவரை உலகமும்

வேந்தன் மேய தீம்புனல் உலகமும்

வருணன் மேய பெருமணல் உலகமும்

முல்லை குறிஞ்சி மருதம் நெய்தல் எனச்

சொல்லிய முறையான் சொல்லவும் படுமே”

(தொல்.பொருள்.5)

என்ற தொல்காப்பிய வரிகள் தெளிவுபடுத்துகின்றன.

நெய்தல் நில மக்களின் வாழிடம்

கடலும் கடல் சார்ந்த பகுதி நெய்தல் நில மக்களின் வாழிடமாகத் திகழ்கின்றது. இங்கு வாழும் மக்களை “பரதவர்” என்று அழைத்தனர். பரதவ மக்களின் குடியிருப்புகள் “பாக்கம்” என்றும் “பட்டினம்” என்றும் அழைக்கப்படுகின்றன.

பரதவ மக்களின் குடியிருப்புகள் புல்லால் வேயப்பட்ட குறுகிய வாயிலையுடைய குடிசைகளைக் கொண்டதாகவும், கடல்சார் உணவுப்பொருட்கள் புலால் நாளும் தன்மையுடையதாகவும் விளங்கும் என்பதை

“புலாஅல் மறுகிற் சிறுகுடிப் பாக்கத்து

இனமீன் வேட்டுவர்”

“புலால்அம் சேரிப்புல்வேய் குரம்மை”

(அகம்:270:2-3)

(அகம்:200:2)

என்ற அகநானூற்றுப் பாடல் மூலம் அறியமுடிகின்றது.

கடல்நீரின் தன்மை

கடலையே இவர்கள் வாழ்விடமாகக் கொண்டு வாழ்வதால் கடல் நீரின் தன்மையை உணர்ந்து அதற்கு ஏற்றாற் போல அவர்களின் அடிப்படைத் தொழிலை மேம்படுத்திக் கொண்டனர். கடல்நீரின் தன்மை, நிறம், இடத்திற்கு இடம் மாறுபடுகின்றன. கடல் நீரின் தன்மைக்கேற்ப அப்பகுதியில் வாழும் உயிரினங்களின் இடமாற்றமும், இறந்து போதலும் நிகழ்வதால் கடலின் வளம் குன்ற நேரிடும்.

நற்றிணைக் காட்டும் வாழ்வியல் நெறிகள்

*முனைவர் **ப.இராதா**, உதவிப் பேராசிரியர், தமிழ்த்துறை, எஸ்.டி.என்.பி. மகளிர் வைணவக் கல்லூரி, குரோம்பேட்டை, சென்னை - 600 044.

முன்னுரை

‘அரிது அரிது மானிடராய்ப் பிறத்தல் அரிது’ என்பார் ஔவையார். பிறவிகளில் சிறந்தது பிறப்பு மனிதப்பிறவியாகும். நாம் இவ்வுலகில் வாழ்வதற்குச் சில நெறிமுறைகளைப் பின்பற்றியாகவேண்டும் எப்படியும் வாழலாம் என்பதை விடுத்து இப்படித்தான் வாழ வேண்டும் என்று நெறிமுறைகளை வகுத்து வாழும் வாழ்க்கை முறை நம்முடையது. அவ்வகையில் நற்றிணையில் மகளிரின் வாழ்வியல் முறையானது எவ்வகையில் காணப்படுகின்றது என்பதை ஆராய்வதே இக்கட்டுரையின் நோக்கமாகும்.

நற்றிணையில் வாழ்வியல் நெறி

குறிக்கோள் இல்லாத வாழ்வு வாழ்வதில் எவ்விதப் பயனும் இல்லை. அதுபோல ஒரு செயலைச் செய்வது என்று முடிவு செய்து கொண்டோமேயானால் அதை இன்றே செய்து முடிக்கும் திறம் வேண்டும். நாளை நாளை என்று சோம்பி இருந்தல் வாழ்வில் வெற்றிக்கான வழியை வகுப்பதில்லை. ஒருவர் தமது வாழ்வில் சோம்பேறித்தனமாக இருந்தால் வாழ்க்கையானது செம்மையாக இருக்காது. புகழ், இன்பம், கொடை ஆகிய இம்முன்னும் சோம்பேறியாக இருப்பவரிடம் இருக்காது என்பதைத் தோழி உரைப்பதாக,

இசையும் இன்பமும் ஈதலும் முன்னும்

அசையுநர் இருந்தோர்க்கு அரும் புணர்வு ஈனம், என,

வினைவயின் பிரிந்த வேறுபடு கொள்கை,

நற். 214: 1-3

என்னும் நற்றிணை வரிகளின் காட்டுகின்றன. வாழ்க்கைப் பாதையில் நல்ல முன்னேற்றப் பாதையில் செல்பவர் சோம்பேறியாக இருந்தால் வெற்றியடைய முடியாது என்பதை இதன் வழி அறியமுடிகின்றது. மேலும் நம்முன்னோர்கள் உரத்தக் குரலில் அதிகாரமாக நடந்துகொள்வதோ (ஆணையிடுவதோ), விரைந்து செல்லக்கூடிய வாகனங்களில் (குதிரை, யானை, தேர்) பயணம் செய்வதையோ செல்வமாகக் கருதவில்லை. இவற்றையெல்லாம் முன் செய்த வினைப் பயன் என்று கருதினர். அவர்கள் செல்வமாகக் கருதுவது அடைக்கலம் என்று வந்தவர்களுக்குத் துன்பம் நேரும் போது அவர்களைவிட்டு நீங்காமல், அவர்களின் துன்பங்களையும் பண்புடையவர்களே செல்வம் பெற்றவர்களாகக் கருதப்படுகின்றனர் என்பதை,

நெடிய மொழிதலும் கடிய ஊர்தலும்

செல்வம் அன்று; தன் செய் வினைப் பயனே;

சான்றோம் செல்வம் என்பது, சேர்ந்தோர்

புன்கண் அஞ்சும் பண்பின்

மென் கட் செல்வம் என்பதுவே

நற். 210: 5-9

என்று நற்றிணைப் புலவர் கூறியிருப்பதைக் கொண்டு அக்கால வாழ்வியல் நெறியை உணரமுடிகின்றது.

மகளிரின் மாண்பு

கணவனது வருவாய்க்குத் தகுந்தார் போல் வாழ்வியலைச் செம்மையாக வழி நடத்திய பாங்கினை நற்றிணைப் பாடலின் வழி அறியமுடிகின்றது. செல்வச் செழிப்பில் வாழ்ந்த ஒரு பெண் கணவனது குடும்பம் வறுமையுற்ற நிலையில் இருக்கும் பொழுது பிறந்த வீடு சென்று வளமாக வாழ நினைக்காமல் தலைவன் மீது கொண்ட அன்பின் காரணமாகத் துன்பத்தைப் பொறுத்துக் கொள்கிறாள் என்பதை,

கொண்ட கொழுநன் குடி வறன் உற்றென,

கொடுத்த தந்தை கொழுஞ் சோறு உள்ளாள்,

ஒழுகு நீர் நுணங்கு அறல் போல,

பொழுது மறுத்து உண்ணும் சிறு மதுகையளே! நற்.110: 10-13

இப்பாடலின் வாயிலாகத் தலைவியின் இல்லற மாண்பை அறியமுடிகின்றது.

பழமொழி உணர்த்தும் வாழ்வியல்

*முனைவர் அ.சுகந்தி அன்னத்தாய், உதவிப் பேராசிரியர், தமிழ்த் துறை, எஸ்.டி.என்.பி மகளிர் வைணவக் கல்லூரி, குரோம்பேட்டை, சென்னை - 44.

முன்னுரை

‘இலக்கியம் காலம் காட்டும் கண்ணாடி’ என்பர். குறிப்பாக ஏட்டில் எழுதப்படாது, மக்கள் வாய்மொழியாகக் காத்து வழங்கி வரும் ‘நாட்டுப்புற வழக்காறுகள்’ மக்களின் உண்மை வாழ்வை ‘உள்ளதை உள்ளவாறு’ எடுத்தியம்பும் ஆதாரமாகத் திகழ்கின்றன. அவ்வகையில் மக்களின் அனுபவ வெளிப்பாடாக விளங்கும் நாட்டுப்புறப் பழமொழிகளில் காணலாகும் ‘வாழ்வியல் கூறு’களை இனம் காணுவது இக்கட்டுரையின் நோக்கமாகக் கொள்ளப் பெறுகிறது.

பழமொழி - வரையறை

மிகத்தொன்மையான பழமொழியை வரையறை செய்த தொல்காப்பியர். தம் நூற்பாவில்,

“நுண்மையும் சுருக்கும் ஒளியுடைமையும்

எண்மையும் என்றிவை விளக்கத் தோன்றிக்

குறித்த பொருளை முடித்ததற்கு வருஉம்

ஏது நுதலிய முதுமொழி என்ப” (தொல், செய் : 175)

என உரைத்துள்ளார். இந்நூற்பாவிற்கு, ‘பழமொழி ஒரு கருத்தை உணர்த்த வேண்டும். அக்கருத்து காரணத்துடன் பொருந்தியதாகவும், அறிவுக்கு ஏற்றதாகவும் அமைதல் வேண்டும். அதில் நுட்பம், சுருக்கம், விளக்கம் (தெளிவு), எளிமை ஆகிய நான்கு இயல்புகளும் அமைந்திருத்தல் வேண்டும். இவையாவும் அமையப் பெற்றதே பழமொழி.’ எனப் பேராசிரியர் விளக்கம் தருகின்றார்.

உலக இயற்கை

“பிச்சை எடுத்ததாம் பெருமாள்

அதைப் பிடுங்கி தின்னதாம் அனுமார்”

என்று அனுமனைப் பற்றி, ஒரு நகைச்சுவையான பழமொழி வழங்கப்பட்டு வருகிறது. உலகம் முழுவதும் ஒரு குடைக்கீழ் ஆளும் மாபெரும் வேந்தனாக இருந்தாலும் அவனுக்கும் துன்பமுண்டு இன்பமும் துன்பமும் மாறி மாறி வரும் என்பதனை ஒட்டிய சில பழமொழிகள் மக்களிடையே வழங்கப்பட்டு வருகின்றன.

“யானைக்கொரு காலம் வந்தால் பூனைக்கொரு காலம் வரும்”

“முப்பது வருஷம் வாழ்ந்தவனுமில்லை முப்பது வருஷம் தாழ்ந்தவனுமில்லை”

என்பன அவ்வுண்மையை உணர்த்தும் பழமொழிகள் ஆகும்.

திருமணம்

“வீடு கட்டுவதும், பெண்ணைக் கல்யாணம் பண்ணிக்கொடுப்பது கடினம். ஆனால் இவை இரண்டும் நமக்குத் தேவை. இதன் அடிப்படையில்,

“வீட்டைக் கட்டிப்பார் கல்யாணம் பண்ணிப்பார்”

என்ற பழமொழி அமைந்துள்ளது.

கணவன்

கட்டிய கணவனின் பாசம் நாளாக நாளாகக் குறைவதை,

“ஆசை அறுபது நாள்

மோகம் முப்பது நாள்

தொண்ணூற்று நாளும் போனால்

துடைப்பக் கட்டை அடி”

ஏற்ற பழமொழி வாயிலாகக் கூறுகின்றனர்.

மனைவி

பெண்கள் தம் கணவன் எப்படிப்பட்டவனாக இருந்தாலும், அவர்களுடன் வாழும் இயல்புடையர். இதையே,

“கல்லானாலும் கணவன் புல்லானாலும் புருசன்”

என்ற பழமொழி உணர்த்துகிறது.

கலித்தொகையில் வாழ்வியல் கூறுகள்

*பொ.விஜயராணி, விரிவுரையாளர், தமிழ்த்துறை, எஸ்.டி.என்.பி. மகளிர் வைணவக் கல்லூரி, குரோம்பேட்டை, சென்னை.44.

முன்னுரை

பண்பாட்டுக் கூறுகளுள் பழக்க வழக்கம் என்பது வாழ்வியலை பிரதிபலிக்கும் தன்மை ஆகும். கற்றறிந்தார் ஏற்றும்கலி எனச் சிறப்பிக்கப்படும் எட்டுத்தொகை நூலான கலித்தொகையில் பழந்தமிழரின் நற்பண்புகளும் சமூக வாழ்வியலும் நன்கு எடுத்தியம்புகிறது. தனக்கென ஒரு வாழ்வியல் நெறியை ஏற்படுத்தி செம்மையாக வாழ்ந்து உள்ளதை அறிய முடிகிறது. சிந்தனையின் அடிப்படையில் காதல், வீரம், சான்றோர் இயல்பு, களவு ஒழுக்கம், இல்லற மாண்பு, தீது இலான் செல்வம், கனவொழுக்கம், கற்பொழுக்கம், நன்றி மறவாமை என்ற சிந்தனையின் அடிப்படையில் கலித்தொகையில் வாழ்வியல் கூறுகள் இடம்பெற்றுள்ள விதத்தை எடுத்துரைப்பதே இக்கட்டுரையின் நோக்கமாக அமைகிறது.

விழா

மக்களின் வாழ்க்கையில் விழாக்கள் முக்கிய இடம் பெறுகின்றன. மகிழ்வுடனும் சுற்றத்தினருடன் இணைந்து ஒற்றுமையாக வாழ விழாக்கள் வழிவகுப்பதாக அமைகிறது என்பதனை,

“நடுக்கம் செய்பொழு தாயின்

காமவேள் விழவாயின் கலங்குவள் பெரிதே” கலி 27

என்பதிலிருந்து காமனுக்கு விழா எடுப்பதை அறிந்து கொள்கிறோம்.

அறம்

“முறைசெய்து காப்பாற்றும் மன்னவன் மக்கட்கு

இறை என வைக்கப்படும்” குறள் 388

என்ற குறளுக்கு ஏற்ப மக்களைக் காக்கும் மன்னன் இறைவனுக்குச் சமமாகக் கருதப்படுகிறான். அத்தகைய மன்னன் தன்னுடைய கடமையிலிருந்து தவறாமல் இருத்தல் வேண்டும். நீண்ட தொலைவில் உள்ள பொருளைக் கண் கண்டதாயினும், தனக்குள்ள குற்றத்தைக் கண் காண இயலாது. அதுபோல அரசன் பிறருக்கு நன்மை செய்பவனாக மட்டும் இருந்தால் போதாது தன்னுடைய தலைவிக்கும் அன்பை வெளிப்படுத்தி அவளை ஏற்றுக்கொள்ள வேண்டும் என்ற உயர்ந்த கருத்தினை,

“அரண் நிழல் எனக் கொண்டாய் ஆய்க் குடை அக்குடைப்

புறநிழற் பட்டாளோ இவள்?”

(கலி. 99: 8,9)

என்ற பாடல் வலியுறுத்துகிறது.

மடலேறுதல்

பண்டைய தமிழரின் வாழ்வியல் கூறுகளில் மடலேறுதல் என்பது ஒன்றாகும். களவு வாழ்வு கற்பு வாழ்வாக மாற்றுவதற்கான ஒரு சிறந்த உத்தியாக இது கையாளப்படுகிறது. தலைவன் தான் விரும்பிய தலைவியை அடைவதற்கு இது பயன்படுத்தப்படுகிறது. தற்காலத்தில் காதலர்கள் இல்லற வாழ்வில் இணைய முடியவில்லை என்றால் தவறான முடிவு எடுப்பது போல அல்லாமல் முயற்சி உடையார் இகழ்ச்சி அடையார் என்பதற்கேற்ப எடுத்த காரியத்தில் வெற்றி பெற அவர்கள் பயன்படுத்தியதே மடலேறுதல் என்னும் உத்தி ஆகும். அதனை,

“மணிப்பீலி சூட்டிய நூலொடு மற்றை

ஆணிப்பூளை ஆவிரை எருக்கொடு”

(கலி. 138)

பறை அறிவித்தல்

பறை என்னும் கருவி செய்தியை மக்களுக்கு அறிவிக்கப்பயன்படுகிறது. பல்வேறு விழாக்களின் போதும் நிகழ்வின் போதும் அவசர காலங்களில் நிமித்தமாகவும் பழைய அறிவிப்பது வழக்கம் ஆகும். இதனை,

“நிறையழி கொல்யாணை நீர்க்குவிட் டாங்குப்

பறைஅறைந் தல்லது செல்லற்க”

(கலி 56: 32,33)

இலக்கியங்களில் மனையாள்

*முனைவர் சு.மகேஸ்வரி, துணைப்பேராசிரியர், SDNB மகளிர் வைணவக் கல்லூரி, குரோம்பேட்டை
சென்னை- 44.

முன்னுரை

‘இல்லறம்’ எனும் சொல் இல்லத்தில் (குடும்பத்தில்) இருந்துகொண்டு அறச்செயல்களை மேற்கொள்வது என்னும் பொருள் உடையது ஆகும்.

அதாவது கணவன், மனைவி இருவரும் ஒழுக்கத்தில் ஒருமித்தவராய் இருந்து தம்முடைய வாழ்க்கையில் நேருகின்ற இன்பத் துன்பத்தை எல்லாம் பகிர்ந்துகொண்டு பிள்ளைகளுடன் “சமூக கடமையைப் பின்பற்றுவது இல்லறம் ஆகும்”¹. காந்தி எனும் ஆய்வாளரின் இக்கருத்து, இயைபுக்கு இங்கு எண்ணத்தக்கது.

நாம், நாட்டில் மனிதநேயப் பெருக்கம் கருதி, உற்றுநோக்க வேண்டிய நிகழ்வுகள் ப உள்ளன. அவற்றுள் ஒன்று, மேற்சொல்லப்பட்டதன் அடிப்படையிலேதான் இல்லறம் எனக் கூறப்படு குடும்பங்கள் இயங்கிக்கொண்டு இருக்கின்றனவா.

தற்போது, பல இல்லங்களில் மனைவி என்ற பெண்ணின் நிலைப்பாடு படுமோசமாக போய்க்கொண்டு இருக்கிறது. மனைவி என்ற பெண்ணுக்கான இடம் சமூகத்தில் எப்படி இருக்கிறது என்பது கவனிக்கத்தக்கது.

புகுந்த வீடு அதாவது மாமியார் வீடு எனப்படும் பல இல்லத்திற்குள் இருக்கும் ஆண்கள் மற்றும் பெண்கள் தன் வீட்டிற்கு வரும் மருமகளைக் கண்ணீர் கடலிலே மூழ்கச் செய்கின்றன மேலும், ஒரு பெண்ணைத் தற்கொலைக்குத் தூண்டுவதாக விளங்குவது. கொலையும் செய்வது என்பது நாட்டில் பல பகுதிகளில் நடந்தேறுகிறது. வாழும் முறை என்ன என்பதை அறியாத அல்லது மறந்த இவர்கள் எல்லாம் வாழ்வதே வீண். பூமாதேவிக்குப் பாரமே.

இவ்வரக்கர்களை, அரக்கிகளை நாட்டில் இல்லாமல் செய்ய வழி என்ன?

பழங்காலம் முதல் இக்காலம் வரை நம் தமிழ் இலக்கியங்கள் மனைவி என்ற பெண்ணை போற்றிப் பாதுகாக்கவேண்டிய முறையைப் பலவாறு குறிப்பிட்டிருக்கின்றன. காரணம், உயிர்க் அனைத்தும் நலமாக இருக்கக் கருதியே ஆகும்.

அற இலக்கியங்களில் மனையாள்

பதினெண் கீழ்க்கணக்கில் இடம்பெற்றிருக்கும் அறநூல்கள் மனிதன் வாழவேண்டிய வாழ்விய நெறிகளை வகுத்து உரைத்துள்ளன. அதாவது, மனித ஒழுக்கலாறுகள் ஒவ்வொருத்தரிடம் எப்ப அமையவேண்டும் என மிக விரிவாகத் தெரிவித்துள்ளன.

அவற்றுள் ஒன்று, மனிதன் வாழ்க்கைச் சூழலில் தன்னைச் சுற்றியிருக்கின்ற உறவுகளிட நடந்துகொள்ள வேண்டிய முறையைக் கூறியிருப்பது ஆகும்.

மனித சமூகத்தில் ஒவ்வொருவருக்கும் உறவுகள் பல அமையக்கூடும். ஒரு ஆண்மகனை சுற்றியிருக்கின்ற உறவுகளுள் ஒன்று மனைவி(மனையாள்) ஆவாள். இப்பெண் குறித்து அறநூல்க முன்வைக்கும் கருத்துகள் யாவை என நோக்குவோம்.

வள்ளுவர், இல்லறம் பற்றிப் பேசும் இல்லறவியலில் இல்லவாழ்க்கை என்பது யாது எனவ வாழ்க்கைத் துணைநலம்(மனைவி) குறித்தும் விரிவாகக் கூறியுள்ளார்.

இல்லவாழ்க்கை என்ற சொல்லிற்குப் பரிமேலழகர் குறிப்பிடும் விளக்கம் வருமாறு:

“அ.தாவது இல்லாளோடு கூடி வாழ்தலினது சிறப்பு.” (ப.33)

ஒருவன் இவ்வுலகத்தில் சேர்த்து வைத்திருக்கும் பொருள்களுள் மனைவியைக் காட்டிலு மேலானது எதுவும் இல்லை என்று இல்லாள் (மனையாள்) என்பவளின் முக்கியத்துவத்தை தெரிவிக்கிறார் திருவள்ளுவர்(குறள்.4).

பொய்யாமொழிப் புலவர், மனைவி என்பவளைப் பற்றிப் பேச முயலும்போது அவள் கணவ என்பவனுக்கு ‘வாழ்க்கைத்துணைநலம்’ என்கிறார்.

இது குறித்துத் தெ.பொ. மீனாட்சிசுந்தரம் அவர்களின் கருத்து விளக்கம் வருமாறு:

Numerical Solution of PDE Using Two Dimensional Chebyshev Wavelet Collocation Method

V.Sumathi, S. Hemalatha, B.Sripathy

Abstract: In this current work, we investigate a new computational scheme to solve a system of Partial Differential Equations. To handle this method, we initially construct a Two Dimensional Chebyshev wavelet which is used to transform the PDE's to a linear system of algebraic equations. We approximate the obtained algebraic equations using collocation method. This algorithm can be easily implemented to solve PDE with boundary conditions. We illustrate with examples to analyze the convergence using this Two Dimensional Chebyshev collocation method. Finally, we show the validity, efficiency and applicability of this new technique with some Numerical Examples.

Keywords: Two Dimensional Chebyshev Wavelets, Operational matrices, Collocation points.

I. INTRODUCTION

In the Universe of Mathematics, It is pretty known that the numerical methods have played a vital role in solving (PDES). Wavelets are efficient tool in numerical modeling of physical problems and to build a bridge to avoid the communication gap. Wavelet theory developed mostly over the last 30 years which has generated a tremendous interest in many areas of research not only in mathematics but also in physics, computer science and Engineering. However most of the applications of wavelets have focused on data analyzing and data compression. The main advantage of this mathematical tool is to diminish the communication gap before the emerging researchers in this infancy field of wavelets. The fundamental logic behind wavelet is to represent a function both in time and frequency domains. We can emphasize that Numerical collocation methods based on wavelets will have good resolution. Wavelets were developed exclusively in the field of quantum physics, Electrical Engineering, Seismic geology, Image Compression, Musical tones and de-noising noisy data. Wavelets are functions that satisfy certain mathematical requirements and are used in representing data or other functions. Other applied fields that make use of wavelets include Astronomy, Acoustics, Nuclear Engineering sub-band coding, Signal Processing, Neuro physiology,

Magnetic resonance Imaging, Speech discrimination, Optics, Fractals Turbulence, Earthquake prediction, Radar human vision etc.

There are many researchers in literature using Chebyshev series or Chebyshev polynomial approximations to solve Linear ODE's and PDE's using approximate methods, spectral methods, Galerkin and Collocation methods. [6, 7,9,10] In Literature there are several approximate methods are discussed such as Legendre wavelet method, Chebyshev – tau method, Homotopy perturbation method, etc, [2, 3] Nowadays the emerging researchers shows more enthusiasm in solving various numerical methods using several types of wavelets. [4,5,8] A crucial role in design of such numerical methods in PDE's plays a good localization property in our proposed method in this article.

The structure of our article is delivered as follows.

We give brief reviews of Chebyshev wavelets their approximation properties, function approximation in section 2. Newly constructed operational matrices of Chebyshev wavelets are introduced in section 3. In Section 4 We make use of our proposed two dimensional Chebyshev. Wavelets collocation method and solve some numerical examples. In Section 5, We conclude our proposed method of our article.

Section:2

Chebyshev wavelet and their properties

Chebyshev wavelet (CW)

$\phi_{n,m}^C(t) = \phi^C(k, \hat{n}, m, t)$ have four arguments;

$$\hat{n} = 2n-1, k \in N, n = 1, 2, \dots, 2^{k-1},$$

and m is the degree of the Chebyshev polynomial of the first kind and t is the normalized time.

$$\phi_{n,m}^C(t) = \phi^C(k, \hat{n}, m, t) = \begin{cases} 2^{k/2} \hat{T}_m(2^k t - \hat{n}) & \text{if } \frac{\hat{n}-1}{2^k} \leq t < \frac{\hat{n}+1}{2^k}; \\ 0 & \text{Otherwise} \end{cases}$$

Where,

$$\hat{T}_m(t) = \begin{cases} \frac{1}{\sqrt{\pi}} & \text{if } m = 0; \\ \sqrt{\frac{2}{\pi}} T_m(t) & \text{if } m > 0. \end{cases}$$

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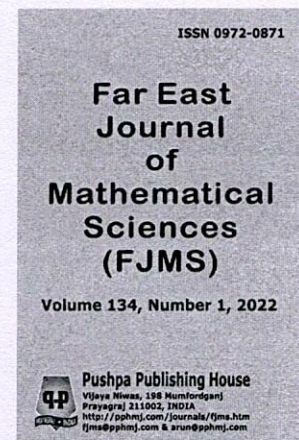
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A COEFFICIENT INEQUALITY OF m -TH ROOT TRANSFORMATION ASSOCIATED WITH BAZILEVIÄ FUNCTIONS

R. Vijaya, S. Sivasubramanian and T. V.
Sudharsan



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Abstract:

In this article, we propose estimate of Fekete-Szegő coefficient problems for some classes of univalent functions using subordination for domains bounded by BazileviÄ functions. We establish an m -th root estimate for some classes of analytic univalent functions.

Keywords and phrases:

analytic function, starlike function, convex function, BazileviÄ functions.

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INDEPENDENT TRANSVERSAL DOMINATION NUMBER IN SOME REGULAR GRAPHS

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Abstract

A set $S \subseteq V$ of vertices in a graph $G = (V, E)$ is called a dominating set if every vertex in $V \setminus S$ is adjacent to a vertex in S . I. Sahul Hamid defined a dominating set which intersects every maximum independent set in G to be an independent transversal dominating set. The minimum cardinality of an independent transversal dominating set is called the independent transversal domination number of G and is denoted by it $\gamma_{it}(G)$. In this paper we determine the independent transversal domination number for some regular graphs namely the generalized Petersen graph $P(n, k)$ for $k = 1, 2, 3$, circulant graphs $C(n; \{1, 2\})$ and $C(n; \{1, 3\})$, cartesian product of cycles $C_3 \square C_n$.

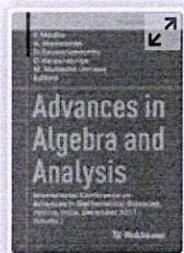
1. Introduction

By a graph $G = (V, E)$, we mean a finite undirected graph with neither loops nor multiple edges. For graph theoretic terminology we refer to the book by Chatrand and Lesniak [1]. All graphs in this paper are assumed to be connected. A set $S \subseteq V$ is a dominating set if every vertex in $V \setminus S$ is adjacent to a vertex of S and the minimum cardinality of a dominating set is called the domination number of G and it is denoted by $\gamma(G)$. A minimum


2010 Mathematics Subject Classification: 05C69.

Keywords: Dominating set, Independent set, Independent transversal dominating set.

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Advances in Algebra and Analysis pp 215–223

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On (p, q) -Quantum Calculus Involving Quasi-Subordination

[S. Kavitha](#), [Nak Eun Cho](#) & [G. Murugusundaramoorthy](#) 

Conference paper | [First Online: 24 January 2019](#)

467 Accesses | **2** Citations



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Abstract

Let $(p, q) \in (0, 1)$. Let the function f be analytic in $|z| < 1$. Further, let the (p, q) be differential operator defined as $\partial_{p,q} f(z) = \frac{f(pz) - f(qz)}{z(p-q)}$, $|z| < 1$. In the current investigation, the authors apply the (p, q) -differential operator for few subclasses of univalent functions defined by quasi-subordination. Initial coefficient bounds for the defined new classes are



Structure determination and quantum chemical analysis of chalcone derivatives

G. Maragatham^a, S. Selvarani^b, P. Rajakumar^b, S. Lakshmi^a  

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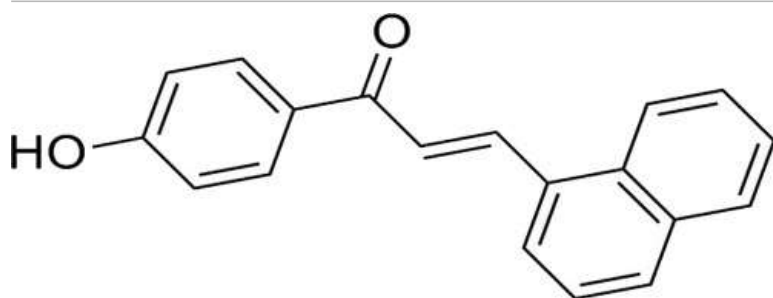
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Abstract

The chalcone derivative with a naphthalene unit, (*E*)-1-(4-hydroxyphenyl)-3-(naphthalen-2-yl)-prop-2-en-1-one was synthesized using the Claisen Schmidt condensation reaction method. This compound crystallizes in the monoclinic space group P2₁/n, with cell parameters *a*=8.7203 (14) Å, *b*=12.5568 (19) Å, *c*=12.9667 (19) Å, α =90, β =104.272 (4), γ =90 and *V*=1376.0 (4) Å³. The UV–Vis spectrum of the title compound and three more chalcone derivatives whose structures were already reported by the same group of authors, show that the crystals are transparent in the entire visible region. Molecular parameters were calculated using MOPAC 2016. The static first order hyperpolarizability of all the four compounds are found to be greater than that of urea indicating that all the compounds are NLO active and suitable for optical tuning applications.

Graphical abstract



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Introduction

Chalcones are 1, 3-diphenyl-2-propene-1-one derivatives, in which two aromatic rings are linked by a three carbon α , β -unsaturated carbonyl system. They are considered as the precursors of flavonoids and isoflavonoids [1]. Naphthalene substituted chalcones act as inhibitors of leukotriene B₄ [2]. A number of chalcones having hydroxy and alkoxy groups at different positions possess vasodilatory activity [3]. Apart from a broad spectrum of biological activities including

Structural, thermal and electrical characterisation of ferroelectric single crystal: Guanidinium Cobalt Sulphate Heptahydrate

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²Department of Physics, SDNB Vaishnav College for Women, Chennai 600 044, India.

Abstract : Semi organic single crystal of guanidinium cobalt sulphate heptahydrate was grown from its aqueous solution by slow evaporation solution growth technique. Powder X-ray diffraction analysis (PXRD) was carried out to confirm the formation of the crystalline compound. The functional groups present in the crystal were identified by FTIR spectroscopic analysis. Thermo gravimetric and differential thermo gravimetric analyses (TG-DTG) were performed to analyse the thermal behaviour of the grown crystal. The dielectric constant and dielectric loss of the grown crystal were studied as a function of frequency of the applied field. The ferroelectric nature of the grown crystal was analysed by P-E hysteresis loop.

Key words : Slow evaporation, PXRD, TG-DTG, P-E hysteresis loop.

Introduction

The growth of linear and nonlinear optical single crystals gains momentum for the past few decades. There has been a growing interest in the field of crystal growth due to the increasing demand of the crystal materials for modern technological applications in the field of semiconductors, solid state lasers, nonlinear optics, piezoelectric, photosensitive materials and crystalline thin films for microelectronics and computer industries. Hence the single crystal growth and its characterisation towards device fabrication are important in the academic as well as applied research. Guanidinium compounds play a major role in the field of non linear optical crystal growth. The guanidinium ion $[C(NH_2)_3]^+$ is an important functional group present in the amino acid and also the basic constituent of many biologically active molecule [1]. It is a strong base which reacts with most organic acid resulting in the formation of guanidinium species. A large number of guanidinium based linear and nonlinear optical single crystals were reported in the literature. The crystal structure, vibrational spectroscopic studies and ferroelectric properties of some guanidinium metal sulphates have been reported in the literature [2-3]. Guanidinium aluminium sulphate hexahydrate and some of its isomorphous materials were

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Growth and Characterization of Non-Linear Optical Single Crystal Guanidinium triscadmium Sulphate Octahydrate

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Semi-organic single crystals of guanidinium tris cadmium sulphate octahydrate (GuCdS) with nonlinear optical properties were successfully grown by slow solvent evaporation technique. The grown crystals were characterised by powder X-ray diffraction analysis to determine the unit cell parameters. The structure of the compound belongs to triclinic crystal system and space group is found to be P1. The grown crystals were subjected to FTIR spectroscopic analysis to confirm the presence of functional groups present in the compound. UV-vis-NIR spectral study suggested that the grown crystal is transparent in the entire visible region, the lower cut off wavelength is 200 nm and the band gap value is estimated to be 6.14 eV. Nonlinear refractive index (n_2), absorption coefficient (β) and third order nonlinear susceptibility ($\chi^{(3)}$) were calculated using Z-scan technique. The thermal stability of grown crystal was investigated by thermogravimetric and differential thermogravimetric analyses. The dielectric behaviour of the grown crystal was analyzed as a function of frequency of the applied field. The mechanical properties of grown crystal were examined by Vickers's micro hardness test. The laser damage threshold of the grown crystal was calculated to be 1.796 GW/cm².

Keywords: Nonlinear Optical Material, Guanidinium tris cadmium sulphate octahydrate, Band gap, Thermal properties.

INTRODUCTION

The growth of single crystals and their characterisation towards device fabrication have gained more interest due to their significant applications in the fields of semiconductors, solid state lasers, nonlinear optics, piezoelectric, photosensitive materials and crystalline thin films for microelectronics and computer industries. In particular the non linear optics plays a major role in the emerging areas of laser technology, optical communication, data storage technology, photonics and optoelectronics. Hence, nonlinear optical materials are important for future photonic technologies as well as the growth of promising new nonlinear optical materials receive great attention [1].

Many organic and inorganic nonlinear optical materials have been reported in the literature with good optical, thermal and mechanical properties. In comparison with these crystals, the semi organic nonlinear optical crystal possesses the advantage of both organic as well as inorganic materials. They have

high damage threshold, wide transparency range, excellent nonlinear optical coefficient and superior mechanical properties [2,3].

Guanidinium based organic and inorganic compounds play a vital role in the field of nonlinear optical crystal growth. The guanidinium ion $[C(NH_2)_3]^+$ is an important functional group present in the amino acid and also the basic component of many biologically active molecule [4]. Different derivatives of guanidinium ion are used in explosives and rocket repellent formulations [5]. It is a strong base which reacts with most of the organic acid resulting in the formation of guanidinium species. The three-fold symmetry of guanidinium ion with six equivalent hydrogen atoms provides excellent condition for hydrogen bonding and this property has made guanidinium compounds as prospective materials in the field of nonlinear optical crystal growth and their applications.

The crystal structure, vibrational spectroscopic studies and ferroelectric properties of some guanidinium metal sulphates have been reported in the literature [6-8]. Many guanidinium

Trace level determination of t-butyl alcohol and t-butyl chloride by GC in dolasetron mesylate

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We herein report the trace level determination of t-butyl alcohol and t-butyl chloride by GC of dolasetron mesylate using a DB-502 column. This method was developed based on an oven programming approach using a nitrogen gas as the mobile phase. The detection limit for the t-butyl alcohol and t-butyl chloride using our developed method was 1.5 ppm. The quantification limit for the t-butyl alcohol and t-butyl chloride using our developed method was 4.5 ppm respectively. Our method is also compatible with the GC-MS (mass spectrometry) technique using helium gas mobile phase instead of nitrogen gas. The successful separation of t-butyl alcohol and t-butyl chloride were confirmed by determination of their corresponding specific molecular masses. We expect that our method will be applicable for the trace level determination of t-butyl alcohol and t-butyl chloride during the control of manufacturing processes, and for use in rapid analysis for quality control in the pharmaceutical industry. Finally, this method was validated according to the International Council on Harmonization Validation Guidelines Q2 (R1).

Keywords: GC, DB-502, t-butyl alcohol, t-butyl chloride, GC-MS.

Introduction

Dolasetron mesylate is an indole derivative with anti-emetic activity¹. As a selective serotonin receptor antagonist, dolasetron mesylate competitively blocks the action of serotonin at 5HT₃ receptors, resulting in suppression of chemotherapy and radiotherapy-induced nausea and vomiting. One dose is usually administered once or twice daily and lasts 4 to 9 h. This drug is removed from the body by the liver and kidneys. t-Butyl alcohol was used in the synthesis of dolasetron mesylate and t-butyl chloride which was a by-product of t-butyl alcohol reacts in acidic condition like hydrochloric acid. The structures of t-butyl alcohol and t-butyl chloride were given in Fig. 1.

t-Butyl alcohol² (TBA) is found in ginger; it is colourless liquid or white solid, with a camphor-like odor. It is very soluble in water and miscible with ethanol and diethyl ether. As per the Toxtree (Estimation of Toxic hazard – A decision tree approach, version 2.6.6, t-butyl alcohol was not genotoxic; however, the structural alerts shows some positive results



Fig. 1. Chemical structures of t-butyl alcohol and t-butyl chloride.

and the limit of t-butyl alcohol was considered as 15 ppm based on threshold toxicological of concern (TTC).

t-Butyl chloride³ (TBC) is the organochloride with the formula (CH₃)₃CCl. It is a colorless, flammable liquid. It is sparingly soluble in water, with a tendency to undergo hydrolysis to the corresponding TBA. As per the Toxtree (Estimation of Toxic hazard – A decision tree approach, version 2.6.6, t-butyl chloride was not genotoxic; however, the structural alerts shows some positive results and the limit of t-butyl chloride was considered as 15 ppm based on TTC.

Till date, the detection and quantification of t-butyl alco-

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Performance Analysis of Mfcc on Voice Recognition System

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Abstract: Voice recognition is computer software to understand the natural mode of communication of the people. Voice recognition recognizes the spoken words and phrases and converts them to a machine-readable format. Voice recognition is commonly used to operate a device, perform commands, or write without having to use a keyboard, mouse, or press any buttons. Voice recognition is the one of the finest research area, in which focuses on who is speaking it and the speech recognition concentrates on what is being spoken. ASR is useful for people with physical disabilities who often find typing difficult, painful or impossible. It has wide range of applications such as Embedded Applications, Command and Control, Telephony, Medical/Disabilities, call routing etc. Here we have discussed some of the feature extraction techniques and performance analysis of mel frequency cepstral coefficients on Voice recognition system. MFCC gives better extraction compared to PLP and LPC. MFCC is faster method compared to vector quantization and FFT. MFCC with HMM gives better accuracy in recognition.

Keywords: Automatic Speech Recognition, Hidden Markov Model, Fast Fourier Transform, Mel frequency cepstral coefficients

1. INTRODUCTION

There are billions of human beings around the world speaking different languages and yet we are able to recognize someone by listening to someone's conversation or speech as long as we can understand the language. Voice recognition is the one of the finest research area, in which focuses on who is speaking it and the speech recognition concentrates on what is being spoken. Automatic speech recognition (ASR) recognizes the spoken words and phrases and converts them to a machine-readable format. ASR is useful for people with physical disabilities who often find typing difficult, painful or impossible. Voice- recognition software can also help those with spelling difficulties, including users with dyslexia, because recognised words are almost always correctly spelled. Today, we have good success with voice and speech recognitions in controlled environment. Utterance, Speaker Independence, Vocabularies, Accurate, Training are some of the basic terminology for understanding speech recognition system [1]

A Smart Green Data Center of Energy Conservation in Cloud and Mobile Cloud Computing

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Abstract – This paper focused to green system of the small data centers with sustainable energy power generation. The estimation must start with a baseline view of power consumption in every part of the data center. The primary vital issues of data centers are increasingly under intervention of their energy consumption and operations. This paper takes first step toward exploring green data centers powered by renewable energy system that include base load power supply, intermittent power supply and backup energy storage systems. The required energy assists in an embryonic attitude of data centers being saved energy with a "greener" consequence. Data centers are the factories of the digital world and the cloud is coming back to earth that ethereal place where data is being stored. The convention of renewable energy resources has been the vital role in our future development of modern technology and cloud computing is the fastest evolving paradigm of the modern age of computers. This requires more and more remote host machines such as servers. Naturally, data centers are required large amounts of energy to power the growing demand. Now, data centers are turning to energy-efficient data facilities to cut costs and green power for their operations. This paper presents small-scale routing algorithm used energy consumption by instead of using conventional energy, thus increasing the effective performance up gradation of the virtual data center. We bring new thought in energy saving of the data centers. This presents the technological way of power consumption in the records of data center.

Keywords – Cloud data center, Small scale algorithm, Energy consumption, Renewable energy

I. INTRODUCTION

A small-scale, cloud computing data center, still, could advantage of modern technological inventions to alternately dependent on solar energy. Cloud computing has developed as new energy utilized technology and virtualization model for the computing world. It provides an appropriate service based on the request of demand in resource pooling and measured service in a highly customizable practice with least effort [1]. However, there is a growing concern to optimize the output of the cloud infrastructure and to make it more mobile to ease the burden on aging computer infrastructure. The Computer infrastructure is becoming outdated and is causing significant problems in the overall energy grid, and non-renewable energy is the energy which is currently used to power most of the world's electricity, only recently due to global warming and other problems such as economics, the need for renewable energy is necessary more than ever. The below Fig. 1 Cisco provides

77% of the traffic exist in the data center by 2020. Center to the center will characterize 9% of traffic with Fig. 1. The output of consumer workload is on the rise from 21% in 2015 to 28% by 2020 data run to end users getting 14% by 2020. Cloud computing explained as an orderly devised tool wherein the users can use the computing requests as and when they need, and they are made available in the cloud through a browser [2]. Cloud Computing is an enabling universal, accessible, on-demand network passage to shared devices like network, servers, applications, and services that vastly released with minimal management effort.

Optimized Information Hiding using Discrete Wavelet Transform and Genetic Algorithm

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Abstract— With rapid advances in the field of communication and information sharing, Steganography – the art of secret communication has gained much attention in recent years. Communicating sensitive information through media like text, sound image and video without being noticed by intruder has become a challenge. Steganography deals with the development of efficient algorithms by a combination of variety of techniques to achieve imperceptibility. This article analyzes the effect of using the Discrete Wavelet Transform for hiding secret data and optimizing it using the genetic algorithm to achieve better results.

Keywords— Spatial Domain, Transform Domain, Discrete Wavelet Transform (DWT), Genetic Algorithm, Mean Square Error (MSE), Peak Signal to Noise Ratio (PSNR).

I. INTRODUCTION

With the growth of internet, transmitting and sharing of information has become inevitable. In Steganography, the field of information hiding, many techniques are used to hide secret sensitive information.

Steganography methods can be categorized into spatial and transform domain methods. In Spatial domain methods secret data is directly embedding in the intensity of pixels [1]. The main focus of steganographic system is to embed content in cover media so as not to arouse an eavesdropper's suspicion [2]. Spatial domain methods include Least Significant Bit (LSB) Embedding, Pixel Value Differencing (PVD), and Random Pixel Embedding etc. The major advantages of spatial domain techniques are their simplicity and ease of implementation. However, the drawback is their vulnerability against attacks. Frequency domain methods embeds secret information in specific locations of the cover image after transformation thereby making it less vulnerable to attacks such as compression, cropping etc [3].

In frequency domain methods, the cover image is converted into frequency domain coefficients and then the secret message is embedded in these coefficients. The popular transforms used for embedding are the Fast Fourier Transform, Discrete Cosine transform (DCT) and the Discrete Wavelet Transform (DWT).

Discrete Wavelet Transform

Wavelets are special functional base for signal decomposition [4]. Applying two dimensional wavelet transform represents an image in the four bands called LL, HL, LH and HH. The LL band contains low pass coefficients and three other bands represent high pass coefficients of the image, horizontal, vertical and diagonal features of the original image. Information related to edge components exists in high frequency section and the low frequency section is selected again for splitting the image into high and low frequency sections [5].

Figure 1 shows the process of 2D wavelet transform of an image of size $M \times N$. The process of DWT transforms the image into A, H, V, D, the approximation, Horizontal, Vertical and Diagonal Coefficients.

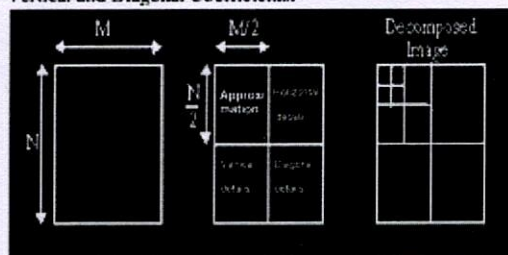


Figure 1. Decomposition Process of DWT



Towards the Future Generation of Mobile Cloud Computing

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Authors: Sudha, M. R.¹; Sumathi, C. P.²;

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This paper is focused to advance the existing mobile devices function with a green incentive, such as solar energy, an algorithm to implement the reduction of power consumption and utilization of resource. Significant fact of mobile cloud computing is an ample processing power and storage. It also solves the issues such as mobility, frequent disconnections, data bandwidth and security. The implementation described on mobile applications on the cloud is the framework of consumption of renewable energy in mobile cloud storage. It makes a cluster of endowment functionality of mobile users in a convenient location. Cloud computing is an explosion way of optimal resource utilization for service suppliers and end users. Software update, a mobile computer can run as almost as a new device. Imagining with the implementation of reducing the energy consumption and implementing efficient ways to improve and run a device better. It describes an elaborated study of mobile cloud computing architecture, estimation of energy and authentication process. Green computing is the sustainable provision of that meets the needs of the future generations. A greener ways to run the mobile devices concentrated with less radiation and more output. Finally, this paper focused on the feasible method of energy efficiency, authentication and current challenges for future research of energy saving in MCC.

Keywords: Architecture; Authentication; Mobile Cloud Computing; Solar Energy

Document Type: Research Article

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Image Classification and Change Detection of Water bodies in Satellite images using different Vegetation Indices

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Abstract— This paper presents an enhanced method for Change Detection and classification of water bodies in Satellite images based on Normalized Difference Water Index(NDWI) and Normalized Difference Vegetation Index (NDVI). These indices are applied on Remote sensing images taken by Resourcesat-2 LISS III sensor. The images are classified as water bodies, land area, clouds, and Vegetation area with four band combinations of the remote sensing images taken in the years 2009-2016. The pixel change detection between the images taken in different seasons such as monsoon, summer is compared for the changes in water levels. This will help to predict the natural disasters, flooding regions and disappearance of small water bodies, also aims to monitor drought in that area.

Keywords— NDWI, NDVI, Satellite Images, Change Detection, Classification

I. INTRODUCTION

Water is the one of the essential natural resources for all living things. Water resources in Villages and cities are gradually reducing due to some encroachment. In rainy season the water levels will increase in ponds and lakes, and after that it gradually decreases. In summer many of the small ponds will disappear. Therefore it is an important task to monitor the water levels of the water resources.

Remote Sensing is an efficient technique for providing necessary information's about water resources, land area, vegetation area and building area and thus we can observe the earth's environment without coming into physical contact of these areas. Remote sensing can be classified as passive or active remote sensing. In passive remote sensing the energy will be directly available from sun, where as active remote sensing energy is generated and sent from the remote sensing platform towards the targets. The energy reflected back from the targets are recorded using sensors. Real sensors have fixed limits of spectral sensitivity and spatial resolution.

A normalized difference water index (NDWI) that uses two bands one green (0.52 to 0.59 μm), and near-Infrared bands (0.77 to 0.85 μm) to find the water pixels present in the image [14]. This index is designed to maximize reflectance of water by using green wavelengths, minimize the low reflectance of NIR by water features and to take advantage of the high reflectance of NIR by vegetation and soil features[15]. As a result, water features have positive values and thus are enhanced, while vegetation and soil

usually have zero or negative values [6]. However, the application of the NDWI in water regions with a built-up land background does not achieve its goal as expected. The extracted water information in those regions was often mixed with built-up land noise. This means that many built-up land features also have positive values in the NDWI image.

NDVI is calculated as a ratio difference between measured canopy reflectance in the red(0.62 to 0.68 μm) and near infrared bands(0.77 to 0.85 μm) respectively [11]. NDVI is a common and widely used index [10]. It is an important vegetation index, widely applied in research on global environmental and climatic change [8].

The goal of this study was to develop an efficient procedure that would allow integrating remote sensing, and assessing its capability with a Geographic Information System of detecting surface features, spatially analyzing data, and identifying water bodies [13].

II. STUDY AREA:

Satellite sensors store information as a grid. Sensors collect digital data from the area covered in the form of smallest area units, known as pixels. The size of the pixel is based on the sensor type and determines the resolution of the image. The Resolution of satellites varies from centimetres to kilometres. The LISS-III is a medium resolution sensor (5.8 m to 56 m) offering a Ground Sample Distance (GSD) of 23.5m with swath is 141 km with repeat cycle of 24 days. It operates in four spectral bands, three VNIR (Visible and Near Infrared and one SWIR (Short-wave Infrared). First spectral Band B2 ranges from 0.52 to 0.59 μm , Second B3 Ranges from 0.62 to 0.68 μm , third spectral band B4 ranges from 0.77 to 0.85 μm and the fourth spectral band B5 ranges from 1.55 to 1.70 μm . In this paper the first spectral Band B2 and third spectral Band B4 are used for detecting the changes in the water bodies.

The path is the descending orbit of the satellite and row is the scene centre. Each path number and row number combination describes a unique rectangular scene of satellite data.

The referencing scheme of LISS-III consists of 341 paths numbered from west to east. Each path consists of 149 rows. Consecutive paths are covered with a separation of five days. If Path 1 is covered on day one, Path 2 will be covered on day six. Each LISS-III scene covers an area of 142 Km x 141 Km. The side lap between two LISS-III scenes is 23.5 Km at the equator. The overlap between successive scenes in a path is 7 Km.

A Braille Transliteration on Tamil Vowels and Consonants Text Image

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TamilNadu, India.*

Abstract

Speech and text is the significant intermediate for human communication. People who have partial vision or blind person can get information from speech. The Braille encoding system represents textual documents in a readable format for the visually challenged persons. This paper presents a research work for converting the Tamil vowel and consonants text present on printed text image to editable text and also transform recognized text into Braille script. The experimentation of the algorithms was carried out on the Tamil text image dataset and results show that the projected method has a good performance.

Keywords: Tamil Text, Braille conversion, Braille System, Visually challenged people, Image Processing

INTRODUCTION

The Braille encoding system represents textual documents in a readable format for the visually challenged persons. As there is a shortage of Braille compatible reading materials, visually challenged people face trouble in necessities like education and employment. Reading text documents is difficult for visually challenged people in various circumstances. Visually impaired persons can read only by use of Braille script. The majority of printed works does not include braille or speech versions. There is a need of a system for automatic recognition of text documents to braille and speech to reduce communication gap between the written text systems used by sighted persons and access mechanisms through which visually impaired people can communicate.

BRAILLE SYSTEM

Braille [1,2,3] is a tactile writing system used by visually challenged people. Braille is a system of raised dots that can be read with the fingers by people who have low vision or blind. Braille is named after Louis Braille, the French man who designed Braille symbols are formed within units of space known as Braille cells. A complete Braille cell comprises of six raised dots arranged in two parallel rows each having three dots. The locations of dot are recognized by numbers from one through six and it is shown in the figure 1.

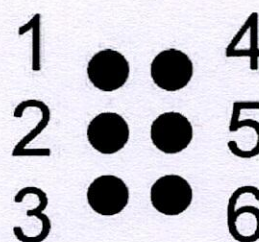


Figure 1: Braille Cell

Sixty-four combinations (2^6) are possible using one or more of these six dots. A single cell can be used to denote an alphabet letter, number, punctuation mark, or even an entire word.

Grade 1 Braille transliterates Braille by changing the letter with the Braille character and is generally used by the beginners. The disadvantage of Grade 1 Braille is that Braille characters are larger than ordinary letter. Grade 2 Braille are contractions and it permits to save space and increase reading speed. But translating a text into Grade 2 Braille needs special training and education.

Grade 3 Braille includes many more extra contractions. It is rarely used for books. Grade 4 Braille scripts are used by very few people. It is a shorthand script. Grade 4 scripts are used by blind people as shorthand to follow oral conversation. **Bharati braille** or **Bharatiya Braille** ("Indian braille"), is a braille script for writing the languages of India. Bharati braille alphabets use a 6-dot cell with values based largely on English Braille. Figure 2 shows the Tamil Braille alphabets sheet.

அ	ஆ	இ	ஈ	உ	ஊ	ஏ	ஐ	ஒ	ஔ
க	கா	கி	கி	கா	கா	கா	கா	கா	கா
ச	சா	சி	சி	சா	சா	சா	சா	சா	சா
ட	டா	டி	டி	டா	டா	டா	டா	டா	டா
ப	பா	பி	பி	பா	பா	பா	பா	பா	பா
ம	மா	மி	மி	மா	மா	மா	மா	மா	மா
ய	யா	யி	யி	யா	யா	யா	யா	யா	யா
ர	ரா	ரி	ரி	ரா	ரா	ரா	ரா	ரா	ரா
ல	லா	லி	லி	லா	லா	லா	லா	லா	லா
வ	வா	வி	வி	வா	வா	வா	வா	வா	வா
ள	ளா	ளி	ளி	ளா	ளா	ளா	ளா	ளா	ளா
ன	னா	னி	னி	னா	னா	னா	னா	னா	னா
ங	ஙா	ஙி	ஙி	ஙா	ஙா	ஙா	ஙா	ஙா	ஙா
ஊ	ஊ	ஊ	ஊ	ஊ	ஊ	ஊ	ஊ	ஊ	ஊ
ஐ	ஐ	ஐ	ஐ	ஐ	ஐ	ஐ	ஐ	ஐ	ஐ
ஔ	ஔ	ஔ	ஔ	ஔ	ஔ	ஔ	ஔ	ஔ	ஔ
ஊ	ஊ	ஊ	ஊ	ஊ	ஊ	ஊ	ஊ	ஊ	ஊ
ஐ	ஐ	ஐ	ஐ	ஐ	ஐ	ஐ	ஐ	ஐ	ஐ
ஔ	ஔ	ஔ	ஔ	ஔ	ஔ	ஔ	ஔ	ஔ	ஔ

Figure 2: Tamil Braille Alphabets Sheet

Technique for Conversion of Text Document into Grade 2 Braille Script

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Abstract

Speech and text is the significant intermediate for human communication. People who have partial vision or blind person can get information from speech. The Braille encoding system represents textual documents in a readable format for the visually challenged persons. This paper projects a speech system model to support visually impaired or blind person in reading the text present on scanned printed text image and also transform recognized text into contracted Braille script. The experimentation of the algorithms was carried out on the text image dataset with different font style and size. Experimental results show that the projected method has a good performance on converting extracting text regions in an image to Grade 2 Braille Script.

Keywords: Braille conversion, Braille System, Visually Challenged people, Image Processing, Contracted braille system

INTRODUCTION

The Braille encoding system represents textual documents in a readable format for the visually challenged persons. As there is a shortage of Braille compatible reading materials, visually challenged people face trouble in necessities like education and employment. Reading text documents is difficult for visually challenged people in various circumstances. Visually impaired persons can read only by use of Braille script. The majority of printed works does not include braille or speech versions. There is a need of a system for automatic recognition of text documents to braille and speech to reduce communication gap between the written text systems used by sighted persons and access mechanisms through which visually impaired people can communicate.

BRAILLE SYSTEM

Braille [1,2] is a tactile writing system used by visually challenged people. Braille is a system of raised dots that can be read with the fingers by people who have low vision or blind. Braille is named after Louis Braille, the French man who design, edit Braille symbols are formed within units of space known as Braille cells. A complete Braille cell comprises of six raised dots arranged in two parallel rows each having three dots. The locations of dot are recognized by numbers from one through six and it is shown in the figure 1. Sixty-four combinations (2^6) are possible using one or more of these six dots. A single cell can be used to denote an

alphabet letter, number, punctuation mark, or even an entire word.

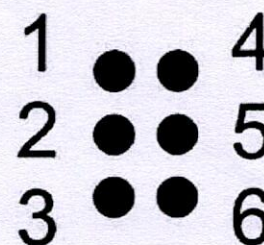


Figure 1: Braille Cell

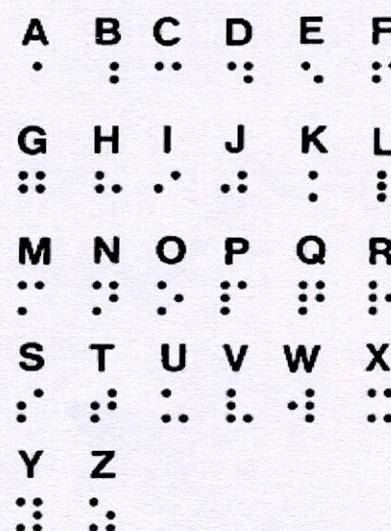


Figure 2: English Braille Alphabets Sheet

Grade 1 Braille transliterates Braille by changing the letter with the Braille character and is generally used by the beginners. The disadvantage of Grade 1 Braille is that Braille characters are larger than ordinary letter. Grade 2 Braille are contractions and it permits to save space and increase reading speed. But translating a text into Grade 2 Braille needs special training and education. Grade 3 Braille includes many more extra contractions. It is rarely used for books. Grade 4 Braillescripts are used by very few people. It is a shorthand script. Grade 4 scripts are used by blind people as shorthand to follow oral conversation. Figure 2 shows the English Braille alphabets sheets and figure 3 shows the Grade 2 Braille System.

COMPARATIVE ANALYSIS OF IMAGE DENOISING TECHNIQUES FOR ENHANCING REAL-TIME IMAGES

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ABSTRACT

Enhancing the real-time images using suitable denoising technique is a challenging aspect. The main objective of this research is to find a methodology or technique that enhances the real-time images such that it gives better accuracy during future image analysis. This article proposed a method that combines the fuzzy concept from Fuzzy based Median Filter [FBMF] and Modified Harris Operator concepts from Region Classification and Response Median Filtering [RCRMF] to detect the noisy pixel of interest and represented by fuzzy flag. The mean used for replacement of processing pixel is calculated using the concept from Absolute Difference, Median and Mean filter [ADMMF]. This proposed method is used to enhance the real-time images such as Computer Tomography (CT) medical and Webcam images. The efficiency of the proposed technique is compared with Fuzzy Based Median Filter (FBMF), Median, Wiener and Bilateral Filter (MWBF) and Absolute Difference Mean and Median Filter (ADMMF) in terms of Peak Signal to Noise Ratio (PSNR), Signal to Noise Ratio (SNR), Mean Square Error (MSE), and Structural Similarity Index Measure (SSIM) metrics. The result of the experiment shows that the proposed method gives the better result than the other three existing filters.

Keywords: CT medical image, Denoising techniques, Image enhancement, Real-time image, Webcam image

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<http://iaeme.com/Home/issue/IJCET?Volume=9&Issue=4>

ANALYSIS OF TEMPLATES MATCHING FOR HUMAN BODY PARTS RECOGNITION

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ABSTRACT

An object recognition system finds objects in the real world from an image of the world. Object recognition is a process for identifying a specific object in a digital image or video. Template matching is a technique in digital image processing for finding small parts of an image which match a template image. A template is nothing but a sub image which is small. The goal is to find occurrences of this template in a larger image that is to find matches of this template in the image. In this present work object recognition of human body parts using a template matching technique.

Keywords: Template, Object recognition, Template matching, Human body parts, Digital image processing.

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<http://www.iaeme.com/IJCET/issues.asp?JType=IJCET&VType=9&IType=4>

1. INTRODUCTION

Object recognition in computer vision is the task of finding a given object in an image or video sequence. Object recognition is fundamental component of artificial intelligence and computer vision. Object recognition methods are used in various areas such as science, engineering, medical applications, etc. Humans recognize a large amount of objects in images with little effort, regardless of the fact that the image of the objects may differ somewhat in different viewpoints, in several different sizes /scale or even when they are translated or rotated [1]. Objects can even be recognized when they are partially obstructed from view. This task is still a challenge for computer vision systems in general.

Template Matching is a high-level machine vision technique that allows to identify the parts of an image that match the given image pattern. Cross Correlation is the basic statistical approach to image registration. It is used for template matching or pattern recognition.



A survey on agriculture and greenhouse monitoring using IOT and WSN

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Abstract

Internet of things (IoT) is connecting physical objects around us; those physical objects can be monitored with the help of sensors. A sensor is a device, which is used to sense physical property of an element, any events or any changes present in the environment and send the information to other electronic device, frequently a computer. Many research are made on those sensor enabled IoT system to provide intelligent and smart services, towards smart greenhouse and smart agriculture. This paper will explore various existing IoT based agriculture and greenhouse system according to their deployment with an intention of identifying how it can be improved in future using IoT, WSN and a very recent scenario of using cloud computing.

Keywords: Internet of Things; Sensors; WSN; Cloud Computing.

1. Introduction

Due to the increase in population, demand for food to meet day-to-day requirements is also growing, on the other hand drastic changes of climate and water scarcity, availability of agricultural land is replaced mostly by corporate buildings and apartments particularly in metropolitan cities. Due to the increase of vehicles, the pollution level is increasing day by day. Many of these issues should not destroy the backbone of India which is nothing but agriculture. Apart from all the above issues the real challenge lies in cultivation of crops which gives more yield with the available space, some new practices, some new methods has to be followed. An ideal solution is to convert our home terrace or backyard in to a greenhouse.

A greenhouse is a framed structure with walls and roof made with transparent material such as glass or translucent plastic roof, in which plants will grow in a regulated climatic condition. The greenhouse materials like glass or plastic are designed to hold heat inside. It may be a cold weather, but the green house will provide a nice warm environment through which plants can grow and flourish. It is noticed that the yield of greenhouse is considerably high due to the controlled environment. This does not happen in regular cultivating field. An added advantage of greenhouse is protection of plants from environmental pollution because of its closed structure.

Advantages of greenhouse monitoring and control

A moderate temperature and humidity can be maintained inside a greenhouse through which plant propagation is effective. It also helps to improve quality and quantity of production. Moreover, it reduces infestation of disease or pests. A major advantage is water conservation and fertilizer requirements as compared to open field cultivation. It also reduces the gestation period of the crop. IoT is an emerging trend, widely used to make objects to think wiser, and to provide prediction for an event based on its historical data, IoT device connected with sensors, the communication between

those sensors requires wireless sensor network. Nowadays researchers are interested in developing many applications based on IoT and WSN, one such application is greenhouse cultivation. Section 2 of this paper will discuss overview of IoT and WSN. Section 3 discuss about related work done using IoT and WSN in agriculture and greenhouse. Section 4 explains about challenges and design issues of WSN. Section 5 describes about discussion and future challenges. Section 6 gives the conclusion.

2. An overview of IOT and wireless sensor network

2.1. Overview of IOT

IoT connects devices through networks and tracks performance of those devices from remote area. A large amount of communication devices in the IoT are embedded in to sensor devices in the real world. Sensor plays a vital role in IoT technologies. Five IoT techniques are widely used in IoT product and services.

Radio Frequency Identification

It is used for unique identification to track an object. A tag is associated with electromagnetic field through which the movement of any tagged objects are easily identified even from the remote places.

Wireless Sensor Network

Devices with sensor used to monitor physical conditions or environmental conditions, when it is combined with RFID systems to better track the status of such things, their location, temperature, and movements.

Middleware

Middleware is a software layer through which software developers perform communication to provide input and to receive output.

Cloud Computing

The data which is generated by many applications need to get stored and those data has to be processed in order to generate



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FEATURE EXTRACTION OF ECG SIGNAL USING ADAPTIVE DECOMPOSITION –DISCRETE WAVELET TRANSFORM TECHNIQUE (AD-DWT)

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ABSTRACT

Wireless Body Area Network is a core area of wireless sensor network which is mainly in health monitoring. This network have some small electric devices such as sensors and actuators to make a complete network communication. These sensors are usually attached within the patient's body or implant under the skin of patient. Electrocardiogram is a method used to measure the rate and regularity of heartbeats for detecting any irregularity in heart. An ECG translates the heart electrical activity into wave line for measuring irregularity. In the proposed work Adaptive Decomposition – Discrete Wavelet transform technique is used for extracting the relevant information and abnormalities and features extraction from the ECG data. This proposed wavelet transform technique uses the Recursive Pyramid Algorithm to rearrange the computation order of the coefficients. The extracted features are frequency and voltage level in millivolts. The extracted features are used further for Reducing End to End Delay in Wireless Body Area Sensor Network.

KEYWORDS: Wireless Body Area Network, Adaptive Decomposition – Discrete Wavelet Transform Technique, Recursive Pyramid Algorithm, Electrocardiogram

INTRODUCTION

Wireless Body Area Network is most advanced area were uses various development techniques to take care of human health. In the proposed work implementation of wireless body area network connected through hibernating greedy protocol is to be developed. The ultimate aim of the research work is to reduce the end to end delay while data transmission.

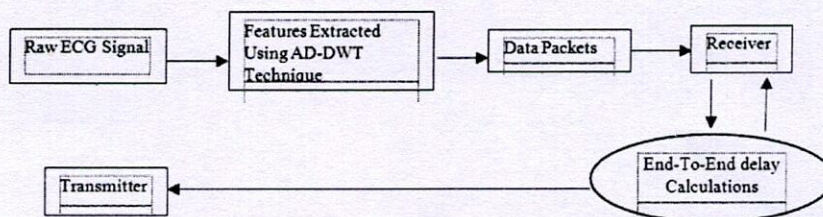


Figure1: Represents Proposed Operation Flow Diagram

Electrocardiogram (ECG) illustrates the electrical activity of the human heart. Physicians basically records the collected ECG for checking the cardiac condition in heart. The device used for recording ECG signals

ORIGINAL ARTICLE**A Cross Sectional Study on Knowledge, Attitude and Practice of Type 2 Diabetes Mellitus Subjects about Diabetes**

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¹Department of Clinical Nutrition, SDNB Vaishnav College for Women, Chrompet, Chennai-600044 (TamilNadu) India, ²Department of Home Science, Women's Christian College, Chennai- 60006 (TamilNadu) India

Abstract

Background: Strategies to improve awareness about diabetes and translation of preventive measures by innovative programmes have to be implemented at national levels to decrease the morbidity rate. **Aim and Objectives:** To study the baseline level of knowledge, attitude and practice among five hundred subjects with Type 2 diabetes mellitus about diabetes mellitus. **Material and Methods:** Five hundred Type 2 diabetes subjects from five diabetes specialty clinics were selected for Knowledge, Attitude and Practice (KAP) survey. Based on their baseline blood parameters and their willingness to participate, data was elicited using a checklist to study their knowledge, attitude and practice. **Results:** Majority (66.8%) of the subjects in the study were of normal weight. Only 3% of the subjects got a perfect score of 10 while among the remaining 97% subjects, the majority (80%) scored from 7 to 9. There was no significant difference in the mean scores of KAP, between the male and female subjects. There was a significant difference between duration and knowledge of diabetes at 5% level and a significant difference (p-value = 0.004) in knowledge score when compared with attitude and practice score of the diabetes subjects. **Conclusion:** There is a need to strengthen the health care system to generate awareness, to enable early detection, and to provide standard and uniform care, and rehabilitation for people with Type 2 diabetes mellitus to manage diabetes and delay the onset of complications.

Keywords: Type 2 Diabetes, Knowledge, Attitude and Practice

Introduction:

Diabetes is rapidly rising as a global health care problem that threatens to attain pandemic levels by 2030. The number of people with diabetes worldwide is projected to escalate from 171 million in 2000 to 366 million by 2030. This upward surge will be most noticeable in developing countries, where people with diabetes is anticipated to increase from 84 million to 228 million [1]. Rapid urbanization and lifestyle changes have led to a dietary transition, globally. There is a shift towards high fat, refined carbohydrate and low-fibre diet. Consumption of fat and refined carbohydrates per person has increased 5 to 10 fold over the past two centuries, while the consumption of fibre-rich grains has turned down considerably [2].

In another 20 years, nearly one-fifth of the world's diabetic population will be in India. India faces several major challenges in the management and prevention of diabetes. Awareness about diabetes is still low among the healthy population to curb it. Lack of knowledge about type 2 diabetes, its risk factors, symptoms, complications, and healthy life style is a challenge that needs to be solved. Government and non-governmental organizations are implementing awareness campaigns by mass rallies, exhibitions and by media. Wide disparities in socioeconomic level, educational background and non-availability of diabetes care are some of

Research Article**Identification, isolation and elucidation of compounds from fraction of methyl hydroxyl chalcone polymer from aqueous extract of *Cinnamomum zeylanicum*****T. Sivapriya^{1*}, Sheila John²**¹Asst Professor, Department of Clinical Nutrition and Dietetics, SDNB Vaishnav College for Women, Chrompet, Chennai, TamilNadu, India²Head and Associate Professor, Department of Home Science, Women's Christian College, Chennai, India

Received: 5 December 2018

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Abstract

Objective: Cinnamon has been touted as an alternative medicine for type 2 diabetes in recent times. There has been multitude of discrepancies about the bioactive compound responsible for insulin sensitising action. The objective of the study is to purify, identify, isolate and elucidate the molecular structure of bio active compounds present in enriched fraction of methyl hydroxyl chalcone polymer (MHCP) in *Cinnamomum zeylanicum* (CZ). **Materials and methods:** Phytochemical screening was carried out to detect the presence of phytochemicals present. Aqueous extract of CZ was subjected to purification and isolation of the enriched fraction of (MHCP). Then the chemical structure of the enriched fraction of (MHCP) was elucidated using spectroscopic techniques like infrared spectroscopy, nuclear magnetic resonance and mass spectroscopy. **Results and Conclusion:** MHCP enriched fraction was subjected FT infrared analysis, nuclear magnetic resonance spectroscopy and mass spectrometry. The bioactive compounds identified were Ellagic acid 3-O-pentoside, Afzelechin 3-O-glucopyranoside, galocatechin 3-O-pentoside.

Keywords: Cinnamon, phytochemical, type 2 Diabetes, insulin, sensitivity

Introduction

As per the ancient adage “spice chest is your pharmacy”, the concept of spices being our medicine is acknowledged from historical times, their flavour and properties make them important for culinary and medicinal uses (Parthasarathy et al., 2008). Spices are used for diverse medicinal therapies, such as stimulants, diuretics, carminatives, anti-inflammatory, stomachic, antibiotics, digestives, astringents, antihelminitics, expectorants and tonics (Chattopadhyay et al., 2004; Platel and Srinivasan, 2004). They are also used in numerous forms such as infusions, decoctions, macerations, tinctures, fluid extracts, teas, juices, syrups, poultices, oils, ointments and powders. Essential oils of spices have been used as aromatherapy for depression, stress and anxiety (Peter and Shylaja, 2012).

Among spices, the inner bark of cinnamon is most accepted,

used universally for cooking and as medicines. The medicinal use of this plant has been authenticated in Ayurveda for over 6000 years (Sangal, 2011). Health benefiting property associated with the consumption of cinnamon could be attributed to its polyphenolic constituent. The main polyphenolic compound in cinnamon is a complex polymer proanthocyanidins and is related to the bioactive components of grape and tea polyphenols (Martin and Ernst, 2003).

Proanthocyanidins, after lignans, are the second most common class of natural phenolic substances found in nature. Since they occur in many foods like apple, tea, cinnamon and cocoa, there is a strong and ever increasing interest in determining their biological properties and significance as dietary antioxidants. Proanthocyanidins have demonstrated beneficial actions including anti-inflammatory, hypoglycemic, insulin activation, antioxidant, hypocholesterolemic and anti-allergic properties (Blade et al., 2010).

Research by Anderson's (2004) group established that the active component in cinnamon responsible for its insulin-like

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Image Classification and Change Detection of Water bodies in Satellite images using different Vegetation Indices

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Abstract— This paper presents an enhanced method for Change Detection and classification of water bodies in Satellite images based on Normalized Difference Water Index (NDWI) and Normalized Difference Vegetation Index (NDVI). These indices are applied on Remote sensing images taken by Resourcesat-2 LISS III sensor. The images are classified as water bodies, land area, clouds, and Vegetation area with four band combinations of the remote sensing images taken in the years 2009-2016. The pixel change detection between the images taken in different seasons such as monsoon, summer is compared for the changes in water levels. This will help to predict the natural disasters, flooding regions and disappearance of small water bodies, also aims to monitor drought in that area.

Keywords— NDWI, NDVI, Satellite Images, Change Detection, Classification

I. INTRODUCTION

Water is the one of the essential natural resources for all living things. Water resources in Villages and cities are gradually reducing due to some encroachment. In rainy season the water levels will increase in ponds and lakes, and after that it gradually decreases. In summer many of the small ponds will disappear. Therefore it is an important task to monitor the water levels of the water resources.

Remote Sensing is an efficient technique for providing necessary information's about water resources, land area, vegetation area and building area and thus we can observe the earth's environment without coming into physical contact of these areas. Remote sensing can be classified as passive or active remote sensing. In passive remote sensing the energy will be directly available from sun, where as active remote sensing energy is generated and sent from the remote sensing platform towards the targets. The energy reflected back from the targets are recorded using sensors. Real sensors have fixed limits of spectral sensitivity and spatial resolution.

A normalized difference water index (NDWI) that uses two bands one green (0.52 to 0.59 μm), and near-Infrared bands (0.77 to 0.85 μm) to find the water pixels present in the image [14]. This index is designed to maximize reflectance of water by using green wavelengths, minimize the low reflectance of NIR by water features and to take advantage of the high reflectance of NIR by vegetation and soil features [15]. As a result, water features have positive values and thus are enhanced, while vegetation and soil

usually have zero or negative values [6]. However, the application of the NDWI in water regions with a built-up land background does not achieve its goal as expected. The extracted water information in those regions was often mixed with built-up land noise. This means that many built-up land features also have positive values in the NDWI image.

NDVI is calculated as a ratio difference between measured canopy reflectance in the red (0.62 to 0.68 μm) and near infrared bands (0.77 to 0.85 μm) respectively [11]. NDVI is a common and widely used index [10]. It is an important vegetation index, widely applied in research on global environmental and climatic change [8].

The goal of this study was to develop an efficient procedure that would allow integrating remote sensing, and assessing its capability with a Geographic Information System of detecting surface features, spatially analyzing data, and identifying water bodies [13].

II. STUDY AREA:

Satellite sensors store information as a grid. Sensors collect digital data from the area covered in the form of smallest area units, known as pixels. The size of the pixel is based on the sensor type and determines the resolution of the image. The Resolution of satellites varies from centimetres to kilometres. The LISS-III is a medium resolution sensor (5.8 m to 56 m) offering a Ground Sample Distance (GSD) of 23.5m with swath is 141 km with repeat cycle of 24 days. It operates in four spectral bands, three VNIR (Visible and Near Infrared) and one SWIR (Short-wave Infrared). First spectral Band B2 ranges from 0.52 to 0.59 μm , Second B3 Ranges from 0.62 to 0.68 μm , third spectral band B4 ranges from 0.77 to 0.85 μm and the fourth spectral band B5 ranges from 1.55 to 1.70 μm . In this paper the first spectral Band B2 and third spectral Band B4 are used for detecting the changes in the water bodies.

The path is the descending orbit of the satellite and row is the scene centre. Each path number and row number combination describes a unique rectangular scene of satellite data.

The referencing scheme of LISS-III consists of 341 paths numbered from west to east. Each path consists of 149 rows. Consecutive paths are covered with a separation of five days. If Path 1 is covered on day one, Path 2 will be covered on day six. Each LISS-III scene covers an area of 142 Km x 141 Km. The side lap between two LISS-III scenes is 23.5 Km at the equator. The overlap between successive scenes in a path is 7 Km.

An Assessment of Customers' Perceptions of E-Commerce

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Abstract: Rapid technological developments taking place in the recent IT area has led to blossoming of E-commerce. The customers feel that E-commerce provides them with wide variety of products that match with the trend at a very reasonable cost. The adolescent and young customers are the major catalytic force behind the E-commerce revolution and also a main stakeholder in the online shopping ethnicity. In the above backdrop it is important to study the implications of E-commerce on the customer perception and satisfaction. An attempt has been made to study the customer perception of E-commerce on varied insight. Online survey method has been used for collection of data. The various statistical tools such as percentage analysis, Factor analysis and cluster analysis were used.

Keywords: E-commerce, Customer perception customer satisfaction and adaptation.

INTRODUCTION

E-commerce, also known as electronic commerce or internet commerce, refers to the buying and selling of goods or services using the internet, and the transfer of money and data to execute these transactions. Ecommerce is often used to refer to the sale of physical products online, but it can also describe any kind of commercial transaction that is facilitated through the internet. Whereas e-business refers to all aspects of operating an online business, e-commerce refers specifically to the transaction of goods and services.

HISTORY OF E-COMMERCE

The history of ecommerce begins with the first ever online sale: on August 11, 1994 when a man sold a CD by the band Sting to his friend through his website Net Market, an American retail platform. This is the first example of a consumer purchasing a product from a business through the World Wide Web—or "ecommerce" as we commonly know it today. Since then, ecommerce has evolved to make products easier to discover and purchase through online retailers and marketplaces. Independent freelancers, small businesses, and large corporations have all benefited from ecommerce, which enables them to sell their goods and services at a scale that was not possible with traditional offline retail.

E-Commerce is the buying and selling of goods and services, or transmitting of funds or data, over an electronic network, primarily the Internet. E-Commerce is conducted using a variety of applications, such as Email, Fax, Online catalogues and Shopping carts, Electronic Data Interchange (EDI), File Transfer Protocol and Web services. E-Commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform and redefine relationships for value creation between or among organisations and between organisations and individuals.

TYPES OF E-COMMERCE MODELS

1. **Business to Consumer (B2C):** When a business sells a good or service to an individual consumer (e.g. Customer buy a pair of shoes from an online retailer).
2. **Business to Business (B2B):** When a business sells a good or service to another business (e.g. A business sells software-as-a-service for other businesses to use).
3. **Consumer to Consumer (C2C):** When a consumer sells a good or service to another consumer (e.g. Customer sell your old furniture on eBay to another consumer).

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A STUDY ON EMPLOYEE PERCEPTION OF RETENTION STRATEGIES WITH REFERENCE TO SOFTWARE INDUSTRY IN INDIA

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Abstract: The Indian software industry has been a remarkable success story. The software industry epitomizes all that market forces and liberalization can bring to a rather insulated economy. Expanding market opportunities, exponential growth prospects, access to the latest technology, increased income levels, better corporate governance etc have been some of the key benefits that this industry has witnessed over the years. Past two decades the movement of software engineers from one industry to another industry is keep on increases around 45% in the Indian software market hence the software industry has adopt many strategies to retain the talent employees for betterment of the organization. In the critical situation this research has a focused on retention of software employees in India and to find out the various factors influence like package, promotion, level of stress, career development etc to retain the talent software engineers in the competitive market, the sampling technique used in this study is convenience sampling. By using this technique, Data collected through well structured questionnaires from the 500 employees of selected software companies in India. The structural Equation modeling technique was used to propose a model that may be followed by software companies to know the factors which determine their retention rate.

Keyword: Retention, Software companies, package, career development, SEM, Strategies.

INTRODUCTION

IT / ITES (Information Technology / Information Technology Enabled Services) Industries are hitting the headlines more often in business literature. There are more number of IT and ITES companies setting their offshore unit and development centers in India. Due to this high rebellion in India in the IT Industry, there are huge job opportunities available and we should make ourselves well suited for the openings. But on the other hand, if we see the current attrition rate being is very high, it is really a tough challenge to retain an employee.

Employee retention is a challenge, which is a great problems to the HR Managers in today's scenario and it is necessary to retain an employee to achieve a greater success in long run of any business. Customer satisfaction leads to retaining the best employees in an organization which will increase in product sales, Organization health will be good, effective succession strategy can be forecasted. Global Industry experts say that losing an employee at the tactical level will cost

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CHANGING AND UNCHANGING OF ECCENTRIC DOMINATION NUMBER IN GRAPHS

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Abstract

A subset D of the vertex set $V(G)$ of a graph G is said to be a dominating set if every vertex not in D is adjacent to atleast one vertex in D . A dominating set D is said to be an eccentric dominating set if for every $v \in V - D$, there exists atleast one eccentric point of v in D . The minimum of the cardinalities of the eccentric dominating sets of G is called the eccentric domination number $\gamma_{ed}(G)$ of G . In this paper, we have studied the changing and unchanging of eccentric domination number in graphs.

AMS Subject Classification: 05C69.

Key Words and Phrases: Domination number, distance, eccentricity, radius, diameter, self centered graph, neighborhood, eccentric domination.

Changing and Unchanging of Nonsplit Eccentric Domination number in graphs.

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ABSTRACT

A subset D of the vertex set $V(G)$ of a graph G is said to be a dominating set if every vertex not in D is adjacent to at least one vertex in D . A dominating set D is said to be an eccentric dominating set if for every $v \in V - D$, there exists at least one eccentric point of v in D . An eccentric dominating set D of G is a nonsplit eccentric dominating set if the induced sub graph $\langle V - D \rangle$ is connected. The minimum of the cardinalities of the nonsplit eccentric dominating sets of G is called the nonsplit eccentric domination number $\gamma_{nsed}(G)$. In this paper, we have studied the changing and unchanging of Nonsplit eccentric domination number in graphs.

AMS Subject Classification: 05C69.

Key Words and Phrases: Domination number, distance, eccentricity, radius, diameter, self centered graph, neighborhood, eccentric domination, nonsplit eccentric domination.

1 Introduction

Let G be a finite, simple, undirected graph on n vertices with vertex set $V(G)$ and edge set $E(G)$. For graph theoretic terminology refer Harary [5], Buckley and Harary [1]. The concept of distance in graphs plays a dominant role in the study of structural properties of a graph in various angles using related concept of eccentricity of vertices in graphs. The study of structural properties of graphs using distance and eccentricity started with the study of center of tree and propagated in different directions in the study of structural properties of graph such as unique eccentric point graphs, K -eccentric point graphs, self centered graphs. Let G be a connected graph and u be a vertex of G . The eccentricity $e(v)$ of v is the distance to a vertex farthest from v . Thus $e(v) = \max\{d(u, v) : u \in V\}$. The radius $r(G)$ is the minimum eccentricity of the vertices, whereas the diameter $\text{diam}(G)$ is the maximum eccentricity. For any connected graph G , $r(G) \leq \text{diam}(G) \leq 2r(G)$. The vertex v is a central vertex of G if $e(v) = r(G)$. The center $C(G)$ is the set of all central vertices of G . The central subgraph $\langle C(G) \rangle$ of a graph G is the subgraph induced by the center. The vertex v is a peripheral vertex if $e(v) = \text{diam}(G)$. The periphery $P(G)$ is the set of all peripheral vertices of G . For a vertex v , each vertex at a distance $e(v)$ from v is an eccentric vertex of v . Eccentric set of a vertex v is defined as $E(v) = \{u \in V(G) : d(u, v) = e(v)\}$. The open neighborhood $N(u)$ of a vertex u is the set of all vertices adjacent to v in V . $N[u] = N(u) \cup \{u\}$ is called the closed neighborhood of u . For a vertex $u \in V(G)$, $N_i(u) = \{u \in V(G) : d(u, v) = i\}$ is defined to be the i th neighborhood of u in G . The concept of domination in graphs was introduced by Ore [8] and Cockayne et al. studied various bounds and results to domination in [4]. A set $D \subseteq V$ is said to be a dominating set of G , if every vertex in $V - D$ is adjacent to some vertex in D .

Complementary Tree Domination in Subdivision graphs

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Abstract

A set D of a graph $G = (V, E)$ is a dominating set if every vertex in $V - D$ is adjacent to some vertex in D . The domination number $\gamma(G)$ of G is the minimum cardinality of a dominating set. A dominating set D is called a complementary tree dominating set if the induced sub graph $\langle V - D \rangle$ is a tree. The minimum cardinality of a complementary tree dominating (ctd) set is called the complementary tree domination number of G and it is denoted by $\gamma_{ctd}(G)$. A subdivision of an edge $e = uv$ of a graph G is the replacement of the edge e by a path (u, v, w) . The graph obtained from G by subdividing every edge e of G exactly once, is called the subdivision graph of G and is denoted by $S(G)$. In this paper, exact values of some standard graphs and bounds of complementary tree domination number in $S(G)$ are found.

Mathematics Subject Classification: 05C69

Keywords: domination number, subdivision graphs

1 Introduction

Graphs discussed in this paper are undirected and simple graphs. For a graph G , let $V(G)$ and $E(G)$ denote its vertex set and edge set respectively. For $v \in V(G)$, the neighbourhood $N(v)$ of v is the set of all vertices adjacent to v in G . $N[v] = N(v) \cup \{v\}$ is called the closed neighbourhood of v . A vertex $v \in V(G)$ is called a support if it is adjacent to a pendant vertex (ie) a vertex of degree one. The graph considered here are finite, undirected, without loops or multiple edges are connected with p vertices and q edges.

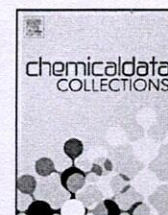
The concept of domination in graphs was introduced by Ore[4]. A set $D \subseteq V(G)$ is said to be a dominating set of G , if every vertex in $V(G) - D$ is adjacent to some vertex in D . D is said to be a minimal dominating set.

Definition 1.1. A set $D \subseteq V(G)$ is said to be a complementary tree dominating set (ctd - set) if the induced sub graph $\langle V(G) - D \rangle$ is a tree. The minimum cardinality of a ctd -set is called the complementary tree domination number of G and it is denoted by $\gamma_{ctd}(G)$.



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Data Article

A computational and spectroscopic interpretation (FT-IR, FT-Raman, UV-vis and NMR) with molecular docking studies on 3-carboxy-2-hydroxy-N, N, N-trimethyl-1-propanaminium hydroxide: A pharmaceutical drug



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ABSTRACT

An Antidote drug 3-carboxy-2-hydroxy-N,N,N-trimethyl-1-propanaminium hydroxide ($C_7H_{16}NO_3$) has been used in this work to investigate the vibrational frequencies using FT-IR, FT-Raman UV-vis and NMR spectra experimentally and quantum chemical calculations of the scaled frequencies using DFT B3LYP/6-311++G(d,p) basis set compared theoretically. In order to assign vibrational wavenumbers Potential Energy Distribution (PED) has been carried out. The Natural bond orbital (NBO) analysis of this molecule has been carried out to describe the various intra molecular interactions responsible for the stabilization of the molecule. Local reactivity properties of the title molecule have been executed through molecular electrostatic potential (MEP). The HOMO and LUMO energy gap were performed using TD-DFT theory and the differences are compared with UV-absorption spectra. The statistical thermodynamical functions (Entropy, Enthalpy and Heat capacity) have been calculated for the range of 100–1000 K. The Fukui functions are evaluated to describe the activity of the sites and Molecular docking study has been executed to investigate the potential of the title molecule to bind with 1S5O receptor, an antidote protein.

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Specification table



Subject area	Computational chemistry, Spectroscopy, Biochemistry
Compounds	IUPAC name: 3-Carboxy-2-Hydroxy-N,N,N-Trimethyl-1-Propanaminium Hydroxide, $C_7H_{16}NO_3$ Generic name: Levocarnitine
Data category	Computational simulations, Molecular dynamics, etc
Data acquisition format	FTIR, FT-Raman, UV-vis and NMR
Data type	Analyzed, simulated
Procedure	Experimental and theoretical comparison


* Corresponding author.



E-mail address: mutgee@gmail.com (S. Muthu).





Lemon peel guided sol-gel synthesis of visible light active nano zinc oxide

B. Abarna ^a, T. Preethi ^b, G.R. Rajarajeswari ^a  

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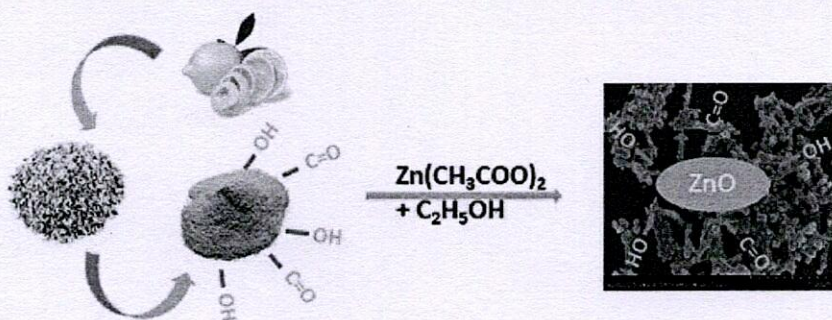
<https://doi.org/10.1016/j.jece.2018.10.056> 

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Abstract

Guiding the growth of nanostructured metal oxides through biomass offers environmentally benign routes to produce solids with customizable crystallite, optical and surface characteristics. In this context, we herein report the synthesis of visible light active nano ZnO through sol-gel method in the presence of lemon peel. The two-fold increase in the surface area and a shift in the absorption edge of lemon peel assisted ZnO towards visible region, together with its enhanced photocatalytic efficiency in the degradation of crystal violet compared to control, attested its suitability to be explored as a possible “green assistant” in the synthesis of metal oxide nano solids.

Graphical abstract



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Introduction

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Ecofriendly, green tea extract directed sol–gel synthesis of nano titania for photocatalytic application

N. Saikumari, **T. Preethi**, B. Abarna & G. R. Rajarajeswari 

Journal of Materials Science: Materials in Electronics **30**,
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445 Accesses | **9** Citations | [Metrics](#)

Abstract

Biomaterial assisted green synthesis of metal oxide nanoparticles plays a vital role as an eco-friendly alternate to chemical templated approach, in enhancing the physico-chemical properties of the solids. Herein, we have reported the synthesis of mesoporous titania nanoparticles by sol–gel method with the assistance of green tea extract (GTE). The synthesized catalysts were characterized using X-ray diffraction (XRD), Fourier transform infrared (FT-IR), Thermo gravimetric (TG), Brunauer-Emmett-Teller (BET), diffused reflectance spectroscopy UV–Visible (DRS-UV), scanning electron microscopy (SEM) and

ANALYSIS ON LEVEL OF AWARENESS IN E- WASTE MANAGEMENT SYSTEM AMONG CHENNAI HOUSEHOLDERS

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Abstract: Electronic waste (E-waste) is any types of electronics that have been discarded or in nonworking condition. E-waste contains precious elements like gold, aluminium, silver etc., and toxic substances like mercury, lead, cadmium etc., which is very harmful to environment and human health. Nowadays, the problem in electronic products has grown faster, while the lifespan of these products has become shorter. In the short period of time, the electronic product becomes waste. Due to the lack of awareness, most people dump the electronic waste in the land or keep it in the home sentimentally. Very few people sell it to the recycler. Hence E-waste management system is a major problem in the whole world. Many researchers analysed various techniques with impact of E-waste and its effect on the environmental factors in various countries. The aim of this research is to analyse the awareness regarding toxicity, environment, recycling of the E-waste. Survey method of research was used to find out the awareness of householders regarding E-waste management in Chennai. A total number of 250 householders were selected. Descriptive statistics was applied on the survey responses to categorise the level of as low, medium, high and no awareness. Random forest techniques was implemented and compared to know the best prediction result. This study conducted feature selection to select best attributes using information gain. A comparative study is made before and after the feature selection. The outcome showed that 68 % of householders have no awareness. Random forest technique also predicted the outcome with 96% accuracy and recommended the features that need to be governed to make the people aware of E-waste management system.

Keywords: E-waste, Recycling, Descriptive statistics, random forest, data mining.

I. INTRODUCTION

Electronic products [1] have been disposed by their original user is called electronic waste. It includes printers, scanners, televisions, monitors, computers, laptop, telephones etc. E-waste contains different toxic and non- toxic substances. The toxic materials presented in the electronic devices are lead, mercury, PCB(polychlorinated biphenyls), chlorofluorocarbons etc., which causes lung cancer, skin cancer, mental illness and affects human health when dismantle or segregate the E-waste. It also contains non- toxic or precious elements like gold, aluminium, silver etc., which is used for recycle. Metals consist of ferrous and non-ferrous where plastics, glass, wood, plywood, printed circuit boards, concrete ceramics, rubber, iron and steel are ferrous metals. Non-ferrous metals consist of metals like copper, aluminium and precious metals, e.g. silver, gold, platinum, palladium, etc. India is the fifth largest in generating an electronic waste. India produces 18.5 lakhs metric tons of E-waste every year but only 2.5% of it is reprocessed. Most of the E-waste in the world is sent to Nigeria, Ghana, Pakistan, India, and China for processing due to lower environmental standards. In most of the cases, this is done illegally because of the precious elements in the E-waste [2]. According to Sahadat Hossain [3], the context of South Asian countries in 2012, India was the highest e-waste producer (2.75 MMT) within the region. According to the survey [4], it shows that the producer should be responsible for their product, extended the warranty of their product and also the Government should encourage the recycling centres, set up regulatory agencies in each city to monitor the E-waste disposal. The Indian Government has organized national level workshops, programs and Policies are framed regarding E-waste management system. There is no proper recycling method followed in India and the lack of awareness getting a new electronic product until the replacement of the old one. Much illegal recycling of E-waste is done to extract precious elements like gold, silver and aluminium. After recycling the E-waste, elements are used for making ornaments, musical instruments [5]. There is no perfect solution in E-waste management and transfer the E-waste to other places for recycle and reuse and also the E-waste is still landed on the landfills [6]. The three factors in E-waste management system are reduce, reuse and recycle for disposing of the electronic waste[7].

ANALYSIS ON LEVEL OF AWARENESS IN E- WASTE MANAGEMENT SYSTEM AMONG CHENNAI HOUSEHOLDERS

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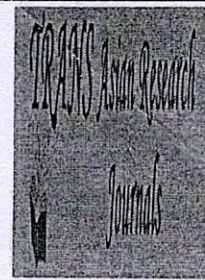
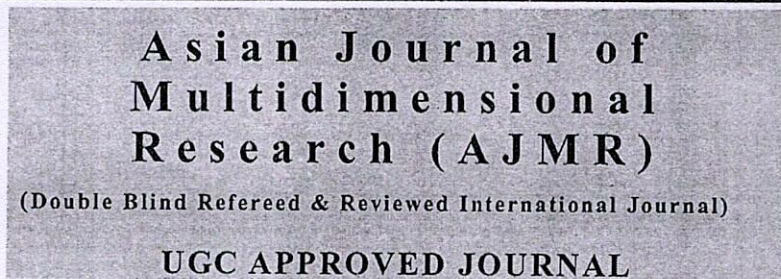
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HOUSEHOLD METHODS AND CHALLENGES FOR FOOD SAFETY

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ABSTRACT

Main objective of this study was to find out various household methods and challenges for food security in Indian context. A normative survey was done on total 104 houses with average SES from Chennai city. Result indicates that food insecurity is due to Changes in our food production and supply, including more imported foods, the environment leading to food contamination, New and emerging bacteria, toxins, and antibiotic resistance, consumer preferences and habits and tests that diagnose foodborne illness. Various methods for food security observed through this study were - Clarifying and standardizing food labelling, Setting targets for food waste prevention and Aiming targeted awareness campaigns at households and the general public.

KEYWORDS: Food Security, Household, Challenges

FACTORS INFLUENCING BRAND SHIFT AMONG TELECOM CONSUMERS

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ABSTRACT: Telecom service industry is growing rapidly and is facing huge competition as there are many subscribers who frequently switch from one service provider to another. The purpose of this study is to identify the factors influencing shift in brand among telecom consumers. So this study focuses on identifying the factors that leads to switching behaviour among telecom consumers. The reasons like debar of Aircel services and introduction of JIO network forces the people to swift from one service provider to another. Literature review states the factors that influence brand shift in telecommunication sector. Primary data was collected through Questionnaire distributed to 200 users of a various service provider. Results of the research have been limited to Vadapalani area only. The study also suggested that the service provider should consider various other factors to equate the opportunity in order to sustain in this competitive world.

1.Introduction

The Telecommunication sector is considered to be the fast growing sectors in India. It has become very difficult to survive for an individual as well as a business man to be without a telecommunication. The Indian telecom sector provides the most affordable services in the world. It has grown in the last few decades. The consumers also play a vital role in building the company to sustain the market among the competitor. There is an increased level of competitions as well as the marketers in telecommunication. Service providers lose their consumers frequently so it is a great challenge to each service provider to attract the new customers and to retain the existing customers. Marketers have to understand the expectations of the consumers and provide them a quality services. They are forced to bring and update new tariff plans in order to retain the existing customers and to attract new consumers in order to survive in this competitive market. The success of every service provider is to develop a cordial relationship with the consumers over years.

Review of Literature

1. **Muzammil Hanif et al., (2010)** describes in the study on factors affecting customers satisfaction is of worth important in order to know the reasons to create satisfaction among customers for a particular brand. The sample size was 150 GSM subscribers of telecom service or mobile service providers. Price fairness and customer services were taken as variables towards customer satisfaction. Standard Deviation, Regression and Correlation analysis were used. The study was concluded that both the factors were important but comparatively Price Fairness had the larger impact on customer satisfaction than customer service.
2. **M. Sathish et al., (2011)** The variables considered for the study are Consumer demographics, Consumer satisfaction with existing service provider, Factors influencing the switching behavior and factors that affect the switching behavior of consumers and these were grouped into 4 categories namely customer service, service problems, usage cost and others Cluster sampling method was chosen. The sample size was 112..The results from the study reveal that call rates plays the most important role in switching the service provider followed by network coverage , value added service and customer care while advertisement plays the least important role. It is found that there is a relation between switching the service provider and the factor.
3. **Kumaresh. K et al., (2012)** studied on Mobile Number Portability which leads to customers switching behavior in Coimbatore. The study examines the impact of MNP on mobile users switching behavior and found that customer were demanding more for better quality of service else switch over to better service and focused on the factors influencing customer MNP and problems faced by them to switch

An Assessment of Customers' Perceptions of E-Commerce

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Abstract: Rapid technological developments taking place in the recent IT area has led to blossoming of E-commerce. The customers feel that E-commerce provides them with wide variety of products that match with the trend at a very reasonable cost. The adolescent and young customers are the major catalytic force behind the E-commerce revolution and also a main stakeholder in the online shopping ethnicity. In the above backdrop it is important to study the implications of E-commerce on the customer perception and satisfaction. An attempt has been made to study the customer perception of E-commerce on varied insight. Online survey method has been used for collection of data. The various statistical tools such as percentage analysis, Factor analysis and cluster analysis were used.

Keywords: E-commerce, Customer perception customer satisfaction and adaptation.

INTRODUCTION

E-commerce, also known as electronic commerce or internet commerce, refers to the buying and selling of goods or services using the internet, and the transfer of money and data to execute these transactions. Ecommerce is often used to refer to the sale of physical products online, but it can also describe any kind of commercial transaction that is facilitated through the internet. Whereas e-business refers to all aspects of operating an online business, e-commerce refers specifically to the transaction of goods and services.

HISTORY OF E-COMMERCE

The history of ecommerce begins with the first ever online sale: on August 11, 1994 when a man sold a CD by the band Sting to his friend through his website Net Market, an American retail platform. This is the first example of a consumer purchasing a product from a business through the World Wide Web—or "ecommerce" as we commonly know it today. Since then, ecommerce has evolved to make products easier to discover and purchase through online retailers and marketplaces. Independent freelancers, small businesses, and large corporations have all benefited from ecommerce, which enables them to sell their goods and services at a scale that was not possible with traditional offline retail.

E-Commerce is the buying and selling of goods and services, or transmitting of funds or data, over an electronic network, primarily the Internet. E-Commerce is conducted using a variety of applications, such as Email, Fax, Online catalogues and Shopping carts, Electronic Data Interchange (EDI), File Transfer Protocol and Web services. E-Commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform and redefine relationships for value creation between or among organisations and between organisations and individuals.

TYPES OF E-COMMERCE MODELS

1. **Business to Consumer (B2C):** When a business sells a good or service to an individual consumer (e.g. Customer buy a pair of shoes from an online retailer).
2. **Business to Business (B2B):** When a business sells a good or service to another business (e.g. A business sells software-as-a-service for other businesses to use).
3. **Consumer to Consumer (C2C):** When a consumer sells a good or service to another consumer (e.g. Customer sell your old furniture on eBay to another consumer).

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