ਮਹਾਰਾਜਾ ਰਣਜੀਤ ਸਿੰਘ ਪੰਜਾਬ ਟੈਕਨੀਕਲ ਯੂਨੀਵਰਸਿਟੀ, ਬਠਿੰਡਾ
MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY
(A State Univ. Estd. by Govt. of Punjab vide Punjab Act No. 5 of 2015 and Approved u/s 2(f) & 12 (B) of UGC; Member AIU)
Bathinda-151001 (Punjab), India

ANNUAL REPORT

2018

RESEARCH PUBLICATIONS

MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY
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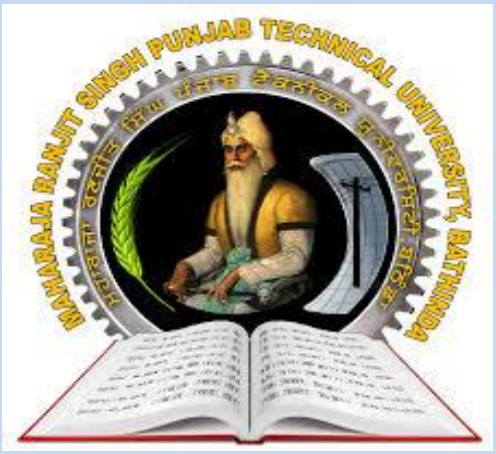
ANNUAL REPORT- RESEARCH PUBLICATIONS



2018

INTERNAL QUALITY ASSURANCE CELL
MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY
BATHINDA 151001

ANNUAL REPORT- RESEARCH PUBLICATIONS [2018]

Prepared by:

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Year 2021

INTERNAL QUALITY ASSURANCE CELL

ANNUAL REPORT- RESEARCH PUBLICATIONS

2018

RESREARCH PUBLICATIONS [2018]		
S.No.	**Research Publications**	**Impact factor**
1.	Mahmood S, Mandal UK, Chatterjee B (2018) Transdermal delivery of raloxifene HCl via ethosomal system: Formulation, advanced characterizations and pharmacokinetic evaluation. *International Journal of Pharmaceutics,* 542, 36-46.	5.875
2.	Sharma S, Kumar P, Deshmukh R (2018) Neuroprotective potential of spermidine against rotenone induced Parkinson's disease in rats. *Neurochemistry International*, 116, 104-111.	3.921
3.	Kaundal M, Deshmukh R, Akhtar M (2018) Protective effect of betulinic acid against intracerebroventricular streptozotocin induced cognitive impairment and neuronal damage in rats: Possible neurotransmitters and neuroinflammatory mechanism. *Pharmacological Reports,* 70, 540-548.	3.024
4.	Singh M, Thakur V, Deshmukh R, Sharma A, Rathore MS, Kumar A, Mishra N (2018) Development and characterization of morin hydrate-loaded micellar nanocarriers for the effective management of Alzheimer's disease. *Journal of Microencapsulation,* 35, 137-148.	3.142
5.	Koshal P, Jamwal S, Kumar P (2018) Glucagon- like peptide-1 (GLP-1) and neurotransmitters signaling in epilepsy: An insight review. *Neuropharmacology,* 136, 271-279.	5.25
6.	Sharma S, Baldi A, Singh RK, Sharma RK (2018) Drafting of comprehensive harmonized regulatory guideline for storage and disposal of radiopharmaceuticals. *Journal of Drug Deliveryand Therapeutics* 8, 279-286.	UGC listed
7.	Arora M, Kaur N, Bansal P, Baldi A (2018) Emergence of traditionally used foods as today's probiotics long journey. *Current TraditionalMedicine*, 5, 114-125.	UGC listed
8.	Dadwal A, Baldi A, Narang RK (2018) Nanoparticles as carriers for drug delivery in cancer.*Artificial Cells, Nanomedicine, and Biotechnology* 46, 295-305.	5.678
9.	Thakur S, Bajwa N, Baldi A (2018) New analytical methods for estimation of arteether by UV and fluorescence spectrophotometry: development and validation. *Journal of Drug Delivery and Therapeutics,* 8, 151-158.	UGC listed
10.	Kumar L, Baldi A, Verma S, Utreja P (2018)Exploring therapeutic potential of nanocarrier systems against breast cancer.*Pharmaceutical Nanotechnology*, 6, 94-110.	UGC listed
11.	Baldi A, Chaudhary M, Sethi S, Chandra R, Madan J (2018) Armamentarium of nanoscale lipid drug delivery systems customized for oral administration: In silico docking patronage, absorption phenomenon, preclinical status, clinical status and future prospects. *Colloids and Surfaces B: Biointerfaces*, 170, 637-647.	5.268

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14.	Kaur A, Jyoti K, Baldi A, Jain UK, Chandra R, Madan J (2018) Self-assembled nanomicelles of amphiphilic clotrimazole glycyl-glycine analogue augmented drug delivery, apoptosis and restrained melanoma tumour progression. *Materials Science and Engineering*, 89,75-86.	7.328
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Department of Food Science & Technology		
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Department of Physics		
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39.	Duggal H, Sharma V, Kainth HS, Kumar S, Shahi JS, Mehta D (2018) Measurement of L XRF cross sections for elements with $33 \leq Z \leq 51$ and their interpretation in terms of Li ($i = 1–3$) subshell vacancy decay parameters. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, 429,19-26.	1.377
Department of Chemistry		
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Department of Mathematics		

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	University Business School	
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	Electronics and communications Engineering	
53.	Kumar A, **Saxena J**, Kumar R, Kaur R (2018) MAI mitigation in MC-CDMA systems using social impact based wireless communication algorithm. *Wireless Presonal Communication,* 101, 1765-1786.	1.671
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Department of Mechanical Engineering		
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DEPARTMENT OF PHARMACEUTICAL SCIENCES & TECHNOLOGY

Sr. No. 1

Transdermal delivery of raloxifene HCl via ethosomal system: Formulation, advanced characterizations and pharmacokinetic evaluation.

Mahmood S[1], Mandal UK[2], Chatterjee B[3]

Author information

International Journal of Pharmaceutics, 28 Feb 2018, 542(1-2):36-46
DOI: 10.1016/j.ijpharm.2018.02.044 PMID: 29501737

Abstract

Raloxifene HCl belongs to a class of selective estrogen receptor modulators (SERMs) which is used for the management of breast cancer. The major problem reported with raloxifene is its poor bioavailability which is only up to 2%. The main objective of the present work was to formulate raloxifene loaded ethosomal preparation for transdermal application and compare it with an oral formulation of the drug. Five ethosomal formulations with different concentrations of ethanol and a conventional liposomes formulation were prepared by rotary evaporation method. The prepared systems were characterised by high resolution transmission electron microscopy

Sr. No. 2

Article

Neuroprotective potential of spermidine against rotenone-induced Parkinson's disease in rats

February 2018 · Neurochemistry International 116

DOI:10.1016/j.neuint.2018.02.010

Project: Neuroprotective potential of spermidine against rotenone induced Parkinson's disease in rats

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Puneet Kumar
Central University of Punjab

Rahul Deshmukh

Sr. No. 3

Accepted Manuscript

Title: Protective effect of betulinic acid against intracerebroventricular streptozotocin induced cognitive impairment and neuronal damage in rats: Possible neurotransmitters and neuroinflammatory mechanism

Authors: Madhu Kaundal, Rahul Deshmukh, Mohd Akhtar

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Journal of Microencapsulation

Micro and Nano Carriers

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Development and characterization of Morin hydrate loaded micellar nanocarriers for the effective management of Alzheimer's disease

Manpreet Singh, Vandana Thakur, Rahul Deshmukh, Amit Sharma, M S Rathore, Ajay Kumar & Neeraj Mishra

To cite this article: Manpreet Singh, Vandana Thakur, Rahul Deshmukh, Amit Sharma, M S Rathore, Ajay Kumar & Neeraj Mishra (2018): Development and characterization of Morin hydrate loaded micellar nanocarriers for the effective management of Alzheimer's disease, Journal of Microencapsulation, DOI: 10.1080/02652048.2018.1441916

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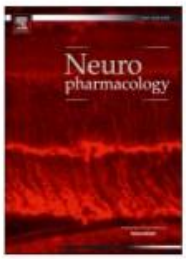
Accepted Manuscript



Glucagon-like Peptide-1 (GLP-1) and neurotransmitters signaling in epilepsy: An insight review

Prashant Koshal, Sumit Jamwal, Puneet Kumar

PII: S0028-3908(17)30524-5

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Sr. No. 6

Available online on 15.12.2018 at http://jddtonline.info

Journal of Drug Delivery and Therapeutics

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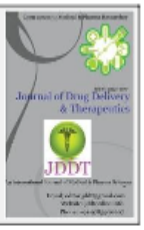

Open Access Research Article

Drafting of comprehensive harmonized regulatory guideline for storage and disposal of radiopharmaceuticals

Sandeep Sharma[1*], Ashish Baldi[2], Rajesh K. Singh[3], Rakesh Kumar Sharma[4*]

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ABSTRACT

Recent era has witnessed an inordinate rise in the demand for radiopharmaceuticals due to their multifarious biomedical and clinical application. Scientific fraternity worldwide is continuously working in developing different innovative radiopharmaceuticals of immense clinical importance both from specialized theranostics and personalized medicine point of view. However, this increased production and use of radiopharmaceuticals in various nuclear medicine procedures have been accompanied by an inevitable problem concerning their storage after use and final disposal. Keeping in view the inherently hazardous nature of radiopharmaceuticals due to the presence of radionuclide in them, it is imperative to have an adequate regulatory backup which if followed meticulously can assure their safe storage and disposal so that threat to men and environment is prevented. The present work has been aimed to draft comprehensive regulatory guidelines for the storage and disposal of radiopharmaceuticals which is in resonance with the global standards. For this, the methodology consisting of a thorough research of existing guidelines from Atomic Energy Regulatory Board (AERB) exclusively on storage and disposal of radiopharmaceuticals in India has been done with the objective to identify and select various parameters not yet explicitly covered as is their scope. The guideline has been made to suitably address all sorts of necessary documentation, allocation of responsibility, ways of waste prevention, various mechanisms to deal with radiopharmaceuticals waste in all forms of matter and suggestive recommendations.

Keywords: Radiopharmaceuticals, Atomic Energy Regulatory Board, Regulatory guidelines of radiopharmaceuticals

Sr. No 7

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Emergence of Traditionally Used Foods as Today's Probioticslong Journey

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Authors: Arora, Malika; Kaur, Navdeep; Bansal, Parveen; Baldi, Ashish
Source: Current Traditional Medicine, Volume 5, Number 2, 2019, pp. 114-125(12)
Publisher: Bentham Science Publishers
DOI: https://doi.org/10.2174/2215083804666181012125122

Abstract | References | Citations | Supplementary Data | Article Media | Metrics

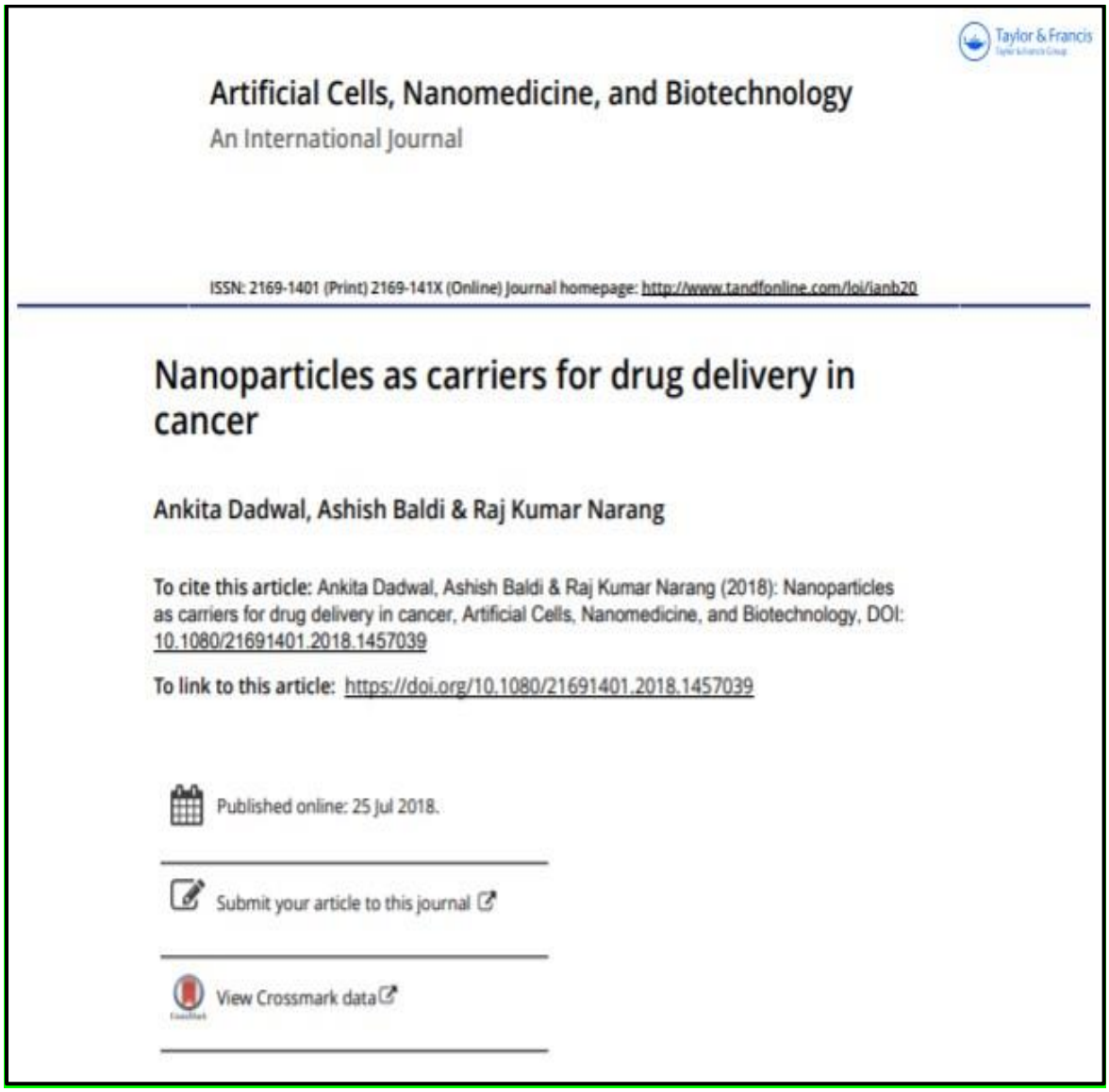
Introduction: Probiotic based food products have become very popular nowadays throughout the world. Due to the steep rise in scientific evidences pointing towards the positive health benefits to humans and animals; probiotic microorganisms are being manufactured by the food manufactures in a range of market products. As per today's era, traditional foods are being anticipated as a delivery vehicle for probiotics and nutraceuticals. These traditional food products are supposed to alter the gut microbial composition, thus leading to improved gut health. Worldwide market of probiotics based food products is increasing exponentially due to the increased interest of consumers towards traditional home remedies.

Materials: The traditional products with therapeutic value and having probiotic characteristics have been searched from various research and reviews article from Ayurveda texts (like Charak Samhita, Sushuruta Samhita, Bhavparkasha Nighantu etc.) and Internet sources such as Pubmed, Google Scholar, Scopus etc.

Results: Though key research developments are going on in the field of probiotic microbes, the use of these in food and pharmaceuticals is a major challenge for both the industry and science sectors. This article summarizes traditionally used probiotics product along with market value, current status, associated health/nutritional claims and potential applications of probiotics for health care professionals and common man. Moreover, this manuscript has highlighted the use of traditional probiotics strain as today's medicines.

Conclusion: In light of ongoing market trends strengthened with presence of the strong scientific evidences for associating health benefits of these probiotic products, there is a need to conduct studies to designate their quality, safety and efficacy. Furthermore, scientific substantiation with supportive evidences of clinical trials is required to be carried out to use probiotics based traditional medical therapy in a safe and judicious manner.

Sr. No. 8



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Artificial Cells, Nanomedicine, and Biotechnology

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Nanoparticles as carriers for drug delivery in cancer

Ankita Dadwal, Ashish Baldi & Raj Kumar Narang

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Open Access to Pharmaceutical and Medical Research

Open Access Research Article

NEW ANALYTICAL METHODS FOR ESTIMATION OF ARTEETHER BY UV AND FLUORESCENCE SPECTROPHOTOMETRY: DEVELOPMENT AND VALIDATION

Thakur Shikha[1], BajwaNeha[2], Baldi Ashish[2]*

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ABSTRACT

The research work is based on the development and validation of two different spectrophotometric methods (UV spectrophotometer and spectrofluorimeter) for estimation of α-β arteether. Two simple, accurate, precise, sensitive and economical methods has been developed, validated for the estimation of α-β arteether in bulk and pharmaceutical dosage form as per ICH guidelines Q2(R1). The solvent used for UV spectroscopy was methanol and HCl (8:2) and methanol was used for fluorimeter. For qualitative and quantitative analysis, 254 nm was used in UV spectroscopy and excitation and emission wavelengths were set at 354 nm and 697 nm, respectively for fluorimetry. Coefficients of correlation were found to be 0.993 and 0.992 for UV spectroscopy and fluorimetry respectively. Both methods show good accuracy and precision and were compared statistically by using two way ANOVA which shows no significant difference between these methods. So, the proposed methods were found to have equal applicability for estimation and routine analysis of arteether in pharmaceutical formulations.

Keywords: Arteether, Analytical method, Fluorimeter, Pharmaceutical formulation, UV spectrophotometer.

Sr. No. 10

Exploring Therapeutic Potential Of Nanocarrier Systems Against Breast Cancer

June 2018

DOI:10.2174/2211738506666180604101920

Project: Development of novel drug delivery system

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Sr. No. 11

Armamentarium of nanoscaled lipid drug delivery systems customized for oral administration: In silico docking patronage, absorption phenomenon, preclinical status, clinical status and future prospects

July 2018 · Colloids and surfaces B: Biointerfaces 170

DOI:10.1016/j.colsurfb.2018.06.061

Project: Development of novel drug delivery system

Authors:

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Sheshank Sethi
Punjabi University, Patiala

Abhiav

Sr. No 12

Drug metabolizing enzymes and their inhibitors' role in cancer resistance

May 2018 · Biomedicine & pharmacotherapy = Biomedecine & pharmacotherapie 105:53-65

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Sr. No. 13

Colloids and Surfaces B: Biointerfaces
Volume 166, 1 June 2018, Pages 339-348

Intratumoral administration of carboplatin bearing poly (ε-caprolactone) nanoparticles amalgamated with *in situ* gel tendered augmented drug delivery, cytotoxicity, and apoptosis in melanoma tumor

Pallvi Bragta [a], Rupinder Kaur Sidhu [a], Kiran Jyoti [b], Ashish Baldi [c], Upendra Kumar Jain [a], Ramesh Chandra [d, e], Jitender Madan [a]

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https://doi.org/10.1016/j.colsurfb.2018.03.009

Sr. No 14

Accepted Manuscript

Self-assembled nanomicelles of amphiphilic clotrimazole glycyl-glycine analogue augmented drug delivery, apoptosis and restrained melanoma tumour progression

Amanpreet Kaur, Kiran Jyoti, Ashish Baldi, Upendra Kumar Jain, Ramesh Chandra, Jitender Madan

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Accepted Manuscript

Chloroquine diphosphate bearing dextran nanoparticles augmented drug delivery and overwhelmed drug resistance in Plasmodium falciparum parasites

Aman Kashyap, Rupinder Kaur, Ashish Baldi, Upendra Kumar Jain, Ramesh Chandra, Jitender Madan

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Sr. No. 16

Computers and Electronics in Agriculture
Volume 145, February 2018, Pages 169-178

Original papers

Ultrasound, microwave and Box-Behnken Design amalgamation offered superior yield of gum from *Abelmoschus esculentus*: Electrical, chemical and functional peculiarity

Meenu Nagpal [a], Geeta Aggarwal [b], Manish Jindal [c], Ashish Baldi [d], Upendra Kumar Jain [a], Ramesh Chandra [e, f], Jitender Madan [a]

Show more

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https://doi.org/10.1016/j.compag.2017.12.036

Sr. No. 17

Pyrrolopyrimidines: An update on recent advancements in their medicinal attributes

Shelly Pathania [1], Ravindra K Rawal [2]

Affiliations + expand

PMID: 30114661 DOI: 10.1016/j.ejmech.2018.08.023

Abstract

Fused heterocycles are reported to demonstrate variety of biological activities such as anticancer, antibacterial, antifungal and anti-inflammatory, and are thus exhaustively utilized in the field of medicinal chemistry. Pyrrolopyrimidines is one of the major classes of fused heterocycles which are extensively reported throughout the literature. Several reports suggest that pyrrolopyrimidine as fused scaffold possess more diverse and potent pharmacological profile than individual pyrrole and pyrimidine nucleus. Different pathological targets require different structural attributes reflected via varied substitutions, thus in recent years, researchers have employed various synthetic strategies to achieve desired substitutions on the pyrrolopyrimidine nucleus. In this review, authors highlight the recent advancement in this area, special focus was laid on the pharmacological profile and structure-activity relationship studies (SAR) of various synthesized pyrrolopyrimidine derivatives.

Keywords: Anticancer; Antiviral; Medicinal attributes; Pyrrolopyrimidines; SAR studies.

Sr. No. 18

Socio-demographic characteristic and drug utilization evaluation of hypertensive patients in Punjab

Autores: Amit Sharma, Ashish Baldi, Kumar Sharma Dinesh
Localización: European journal of clinical pharmacy: atención farmacéutica, ISSN 2385-408X, Vol. 20, Nº. 5, 2018, págs. 238-249
Idioma: Inglés

Resumen

Background: Hypertension is one of the most common worldwide diseases afflicting humans and is a major risk factor for stroke, myocardial infarction, vascular disease and chronic kidney disease. According to the American Heart Association (AHA), approximately 75 million adults in the United States are affected by hypertension. Objectives: The aim of the study was to evaluate relationship of socio-demographic characteristics of hypertensive patients and to find out the current pattern of antihypertensive medication with respect to diagnosis and co-morbidity. Method: A total of 1,150 case notes were retrieved from the medical records unit over a period of six months in major referral hospital, Faridkot and Moga, (Punjab). Information on antihypertensive prescriptions and comorbidities was retrieved. The average cost of medications and laboratory investigations was calculated. Results: During the period of study, 1,150 patients were enrolled out of whom (55.3%) were male and (44.7%) were female irrespective to heredity. The age of patients ranged from 21-85 years with a majority of the patients in the age group between 51-60 years (38.7%). Most of the hypertensive patients were illiterate (55.3%) and unemployed (93.7%) and duration of the disease was less than five years in (34%) patients. Among 1,150 hypertensive patients, most common symptom was found to be breathlessness in (14.7%) patients. Most of hypertensive patients have co-morbid conditions; therefore, they require more than one medication for their proper treatment. Among the comorbid conditions diabetes mellitus were accounted the most (11.3%). Among the hypertensive class, it was found that diuretics were most prescribed drug followed by CCB's, Angiotensin Converting Enzyme Inhibitors, Angiotensin II receptor antagonists, ß-Blockers and a-ß adrenergic blockers

Sr. No. 19

Animal Models of Neurological Disorders

Principle and Working Procedure for Animal Models of Neurological Disorders

Editors (view affiliations)

Puneet Kumar Bansal, Rahul Deshmukh

Introduces undergraduate, postgraduate and research students to the different animal models for studying neurological disorders

Discusses different types of animal models of neurological disorders, the working principle, experimental protocols, different doses of toxins and includes diagrammatical representations

Provides insights into the pathophysiology of neurological disorders

Discusses in detail specific procedures for the induction of neurological disorders so they can be easily reproduced in the laboratory

Sr. No. 20

Novel Topical Nanocarriers for Treatment of Psoriasis: An Overview

Ankita Dadwal [1] [2], Neeraj Mishra [1], Raj K Narang [1]

Affiliations + expand

PMID: 30387390 DOI: 10.2174/1381612824666181102151507

Abstract

Background: Psoriasis is an autoimmune disease of the skin with lapsing episodes of hyperkeratosis, irritation and inflammation. Numerous methodologies and utilization of different antipsoriatic drugs with various activity methods and routes of administration have been investigated to treat this terrifying sickness. In any case, till date, there is no remedy for psoriasis because of the absence of an ideal carrier for effective and safe delivery of antipsoriatic drugs.

Objective: Among the different methods of medications for psoriasis, in the greater part of patients, topical treatment is most commonly utilized. For topical formulations, utilization of conventional excipients could fill the need just to a restricted degree. With the revelation of more up to date biocompatible and biodegradable materials like phospholipids, and Novel drug delivery technologies like liposomes, solid lipid nanoparticles (SLNs), microemulsions, and nanoemulsions, the possibility to enhance the efficiency and safety of the topical products has expanded to a great extent. Understanding the topical delivery aspects and that of outlining and creating different carrier systems have been enhanced that got further novelty to this approach

Sr. No. 21

Recent Advances in Nanosuspension Technology for Drug Delivery

Daisy Arora [1 2], Bharat Khurana [1 3], Goutam Rath [1], Sanju Nanda [2], Amit K Goyal [1 4]

Affiliations + expand

PMID: 29788880 DOI: 10.2174/1381612824666180522100251

Abstract

Background: Discovery and development of BCS class 1 drugs through high throughput screening is one of the biggest challenge faced by formulation scientist.

Methods: There are a number of approaches that have been exploited to enhance the solubility and permeability of drugs. Among them, development of nanosuspension has offered several benefits. These techniques may increase effective surface area due to nanonization of drug particles and further increases saturation solubility and dissolution properties for improved bioavailability. Various development methods are patented which are cost effective and easy to scale up.

Conclusion: Several unique features of nanosuspension make it a versatile delivery system for different routes of administration including oral, dermal, ocular, parenteral and pulmonary. The present review is focused on preparatory techniques and formulation considerations of nanosuspension. Brief information about evaluation parameters, applications of nanosuspension in drug delivery and patented and marketed products available is also discussed.

Sr. No. 22

A Review on Plant Antimicrobials of Past Decade

Preet Amol Singh [1], Sapna D Desai [2], Jasbir Singh [1]

Affiliations + expand

PMID: 29766808 DOI: 10.2174/1568026618666180516123229

Abstract

As per WHO reports, about three-quarters (65-80%) of the world's population seek plants or plant-derived natural products for various diseases. The slow discovery of new synthetic molecules and rising resistance in microbes against existing ones has triggered an alarm for speeding up the development process for new molecules. Traditional system(s) of medicine and plant resources has been foresighted again by researchers to circumvent the situation. This review represents various plant genera which, either as a whole plant or their parts, have been reported possessing antimicrobial properties during the last decade. Before 2007, literature is already well cited in various books and reviews.

Keywords: Activity; Compounds; Constituents; Essential oil; Extracts; MIC..

Sr. No. 23

IN VITRO ANTI-INFLAMMATORY AND ANTIOXIDANT ACTIVITIES OF HINGULESWARA RASABASED HERBOMINERAL FORMULATIONS

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Sr. No. 24

Research paper

Indolyl-isoxazolidines attenuate LPS-stimulated pro-inflammatory cytokines and increase survival in a mouse model of sepsis: Identification of potent lead

Gagandeep Singh [a], Gurjit Singh [a], Rajbir Bhatti [a], Mehak Gupta [c], Ajay Kumar [c], Ankita Sharma [c], Mohan Paul Singh Ishar [a, b]

https://doi.org/10.1016/j.ejmech.2018.04.004

Highlights

- Indolyl-isoxazolidines (**6-9**) have been synthesized by regio- and stereoselective 1,3-dipolar cycloaddition reactions.
- All the compounds were evaluated for inhibitory effect against LPS induced TNF- α and IL-6 in *in vitro* and *in vivo*.

DEPARTMENT OF FOOD SCIENCE & TECHNOLOGY

Sr. No 25

Journal of Food Measurement and Characterization
https://doi.org/10.1007/s11694-018-9768-6

ORIGINAL PAPER

Tulsi (*Ocimum tenuiflorum*) seeds: in vitro DNA damage protection, bioactive compounds and antioxidant potential

Pinderpal Kaur[1] · Sanju Bala Dhull[1] · Kawaljit Singh Sandhu[2] · Raj Kumar Salar[3] · Sukhvinder Singh Purewal[3]

Received: 29 November 2017 / Accepted: 2 March 2018

Abstract

Tulsi (*Ocimum tenuiflorum*) seeds (TS) were evaluated for bioactive compounds, antioxidant potential and DNA damage protection activity. TS were extracted with ethanol, methanol, acetone and chloroform at temperature 44.5 °C for 23.8 min in a water bath. Bioactive constituents and antioxidant properties were studied by TPC, CTC, DPPH, ABTS, TAC, RPA, HFRSA and FRAP assays. Two types of bioactive compounds with varying amount (mg/g dwb) were found. TPC in TS ranged from 0.03 to 1.02 (mg GAE/g dwb) whereas CTC was in range from 1.85 to 6.44 (mg CE/g dwb). Comparisons of antioxidant potential of different extracts of TS revealed that methanol extract (TSM) possess significantly ($p<0.05$) higher value of DPPH (90.9%), ABTS (89.5%), TAC [0.73 mg ascorbic acid equivalent/g dry weight basis (mg AAE/g dwb)] and RPA (9.88 mg Quercetin equivalent/g dwb) as compared to other solvents. HFRSA value of ethanol extract (TSE) was, however, higher than others. Quantitative analysis of antioxidant compounds was performed using HPLC. Four bioactive compounds: gallic acid (0.38 mg), cinnamic acid (0.15 mg), *p*-coumaric acid (0.17 mg) and catechol (0.08 mg) were found when methanol extract (TSM) was used for their quantification. Correlation analysis also revealed relationships between TPC, CTC and different antioxidant assays. Among solvents used, methanol was found to be best extraction phase for the recovery of bioactive constituents with higher antioxidant potential.

Sr. No. 26

INTERNATIONAL JOURNAL OF FOOD PROPERTIES
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Physicochemical, rheological, morphological, and *in vitro* digestibility properties of cross-linked starch from pearl millet cultivars

Anil Kumar Siroha[a] and Kawaljit Singh Sandhu[a,b]

[a]Department of Food Science and Technology, Chaudhary Devi Lal University, Sirsa, India; [b]Department of Food Science and Technology, Maharaja Ranjit Singh Punjab Technical University, Bathinda, India

ABSTRACT

The effect of epichlorohydrin (0.5%) as a cross-linking agent on physico-chemical, rheological, morphological, and *in vitro* digestion properties of pearl millet starches from different cultivars was studied. Degree of cross-linking (DC) ranged between 40.61% and 89.75%, lower values of DC were observed for cv.HC-10 and cv.HHB-67 whereas higher values were observed for cv.HHB-223 and cv.GHB-732. Cross-linked starch from cv.GHB-732 showed the lowest amylose content, swelling power, and solubility as compared to other cultivars. Rheological properties of starches during heating showed their elastic behaviour. G′ value was much higher than the G″ value at all frequency values for starch pastes. Plots of shear stress (σ) versus shear rate ($\dot{\gamma}$) data for cross-linked starch pastes were fitted to Herschel-Bulkley model and yield stress (σ_o), flow behaviour index (n), and consistency index (K) were evaluated. Scanning electron micrographs (SEM) investigations revealed that cross-linked starch granules had slightly rough surfaceand grooves with slight fragmentations. Readily digestible starch (RDS) of cross-linked starches varied from 46.1% to 50.6%, cv.GHB-732 had the lowest value. Slowly digestible starch (SDS) and resistant starch (RS) content of cross-linked starches ranged from 34.5% to 36.4% and 13.6% to 19.4%, respectively. cv.HC-10 had the highest value for SDS content

ARTICLE HISTORY
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KEYWORDS
Pearl millet; Physicochemical; cross-linking; Rheology; *In vitro* digestibility; Morphological

Sr. No. 27

Wheat-Fenugreek Composite Flour Noodles: Effect on Functional, Pasting, Cooking and Sensory Properties

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DEPARTMENT OF COMPUTATIONAL SCIENCE

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Natl. Acad. Sci. Lett.
https://doi.org/10.1007/s40009-017-0606-x

SHORT COMMUNICATION

Offline Handwritten Numeral Recognition using Combination of Different Feature Extraction Techniques

Munish Kumar[1] · M. K. Jindal[2] · R. K. Sharma[3] · Simpel Rani Jindal[4]

Received: 3 September 2016 / Revised: 9 December 2016 / Accepted: 22 November 2017

Abstract A handwritten numeral recognition system using a combination of different feature extraction techniques has been presented in this paper. Initially, we have prepared a skeleton of the numeral, so that meaningful feature information about the numeral can be extracted. For feature extraction, a combination of four types of features, namely, centroid features, diagonal features, zoning features, and peak extent based features has been used. SVM classifier has been considered for classification purpose. For experimental results, 6000 samples of isolated handwritten numerals have been considered. The proposed system achieves maximum recognition accuracy of 96.3% using five-fold cross validation technique.

Keywords Handwritten numeral recognition · Feature extraction and selection · Classification-SVM

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Published online: 23 February 2018

Handwritten numeral recognition has received extensive attention in the fields of academic and production. Handwritten numeral recognition has two streams, namely, online and offline. In online handwritten numeral recognition system, the scanner captures the writing optically and store the information about strokes and pen movement. In offline handwriting recognition, there is no dynamic information available about strokes. Offline handwritten numeral recognition continue to be a dynamic area of research towards exploring the efficient techniques that would improve the recognition accuracy. In United States, handwritten numeral recognition system is widely used for postal automation. The system proposed in this work, can be used for recognition of zip code that could be engaged in mail sorting. The writing styles of human being can be varying in the form of thickness of pen writing, or orientation and positive relative to the margins. The proposed recognition system consists of different phases, namely, data collection, digitization, pre-processing, feature extraction, and classification. The applications of the handwritten numeral recognition are: zip code recognition, passport number recognition, vehicle number recognition etc.

Few researchers have done work for handwritten numeral recognition. Trier et al. [1] have provided a good survey on different feature extraction techniques for offline isolated character recognition. Cordella and Vento [2] have discussed about various techniques for recognition of symbols in document. Chen et al. [3] have applied multi wavelet transformations on the contour of the numeral and considered feed-forward neural network classifier for recognition. Romero et al. [4] have used wavelet transformations technique for handwritten numeral recognition. Dhandra et al. [5] have achieved a recognition accuracy of 96.1% for handwritten numerals using structural features

Sr. No. 29

Natl. Acad. Sci. Lett.
https://doi.org/10.1007/s40009-018-0694-2

SHORT COMMUNICATION

Facial Emotion Recognition System Based on PCA and Gradient Features

Malika Arora[1] · Munish Kumar[2] · Naresh Kumar Garg[1]

Received: 8 June 2017 / Revised: 3 October 2017 / Accepted: 21 June 2018

Abstract An efficient framework is proposed to deal with the facial emotions recognition problem. Since facial expressions result from facial muscle deformations, gradient features are exceptionally sensitive to the object deformations, so apply the gradients to encode these facial components as features. Then further it is joined by the testing process that classifies emotions and results are measured in terms of false acceptance rate, false rejection rate, and recognition accuracy. Proposed system was trained using random forest classifier to recognize the facial emotions. Japanese Female Facial Emotion (JAFFE) database consist of 5 typical emotions, namely, sad, happy, angry, neutral and surprise is considered for experimental results. Proposed framework can be used in real life applications like electroencephalogram in collaboration with brain computer interfaces. The average classification rate on the JAFEE dataset reaches 91.3%. In the proposed system hybridization of Gradient filter, PCA and PSO has been done for facial emotion recognition which has never been used earlier and this hybridization produces performs better than already existing techniques. Experimental results demonstrate the competitive classification accuracy of our proposed method.

Keywords Emotion recognition · Gradient · PCA · Human computer interaction · Random forest

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Published online: 12 September 2018

In recent years, recognition of faces or facial emotions is one of the challenging tasks involved in machine learning. Human beings could convey intentions and emotions through some nonverbal routes, for example, gestures, facial expressions etc. Every individual can recognize feelings immediately but facial expression identification by machine is an enormous task. In the image processing and computer vision, it is extremely motivating to recognize the human emotion for real time applications. For example, emotion seeing of a driver when individual is driving and informing the person when in tired state of mind, will be sensibly helpful. In this paper, a model has been proposed for facial emotion recognition using gradient features and PCA. Five categories of emotions, namely, anger, happy, neutral, sad and surprise as shown in Fig. 1 are recognized using this proposed model. Gradients can be used to extract data from image samples. Precisely, gradient of an image represents the derivative of the uploaded image sample, so its goal is to create a new image sample by finding the gradient of the image which is done by solving Poisson's equation mathematically.

Emotional attributes seriously affect the understanding of emotional correspondences, and understanding the social aspects of the individuals. For emerging facial emotions recognition, it is essential to comprehend that there are different potential outcomes that happen to connote a facial appearance. Facial terminologies can be signified through: pictures, cartoons, facial smiley's

Sr. No. 30

Multimed Tools Appl
https://doi.org/10.1007/s11042-017-5587-8

An efficient content based image retrieval system using BayesNet and K-NN

Munish Kumar[1] • Payal Chhabra[2] • Naresh Kumar Garg[2]

Received: 1 June 2017 / Revised: 2 November 2017 / Accepted: 27 December 2017

Abstract In the progression of web and multi-media, substantial measure of pictures is created and appropriated, to viably store and offer such vast measure of bulky database is a big issue. In this way, Content Based Image Retrieval (CBIR) techniques are used to retrieve images from the massive database based on the desired information. In this proposed work, we are considering two local image feature extraction methods, namely, SIFT and ORB. Scale Invariant Feature Transform (SIFT) is used for detecting features and feature descriptor of an image. Oriented Fast Rotated and BRIEF (ORB) uses FAST (Features from Accelerated Segment Test) key point detector and binary BRIEF (Binary Robust Independent Elementary Features) descriptor of an image. K-Means clustering algorithm is also used in the present paper for analyzing the data, which generates number of clusters using the descriptor vector. Locality Preserving Projection (LPP) is employed to reduce the length of the feature vector to enhance the performance of image retrieval system. For classification, we have considered two classifiers, namely, BayesNet and K-Nearest Neighbours (K-NN). Wang image dataset has been used for experimentation work. We have accomplished the highest precision rate of 88.9% using proposed CBIR system.

Keywords CBIR · SIFT · ORB · K-Means · LPP· BayesNet · K-NN

1 Introduction

Measures of substance in digital images are expanded and to find out specific class of images in view of substance from a massive database is a difficult task. So, Content Based Image Retrieval

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Sr. No. 31

Multimed Tools Appl
https://doi.org/10.1007/s11042-018-5878-8

Underwater image enhancement using blending of CLAHE and percentile methodologies

Diksha Garg[1] • Naresh Kumar Garg[1] • Munish Kumar[2]

Received: 21 August 2017 / Revised: 27 January 2018 / Accepted: 11 March 2018

Abstract In this paper, a method has been proposed for enhancement of underwater images commonly suffering from low contrast and degraded shading quality. The entirety of the image is changed when we move to capture of images, from air to the water. During capturing some absorption, reflection and scattering effects are induced in the form of contrast, quality and noise as the images look hazy or blurred. This makes one shading to overwhelm the image. For use of underwater resources and overcome these factors the enhancement of the images is required. So, in this paper, we proposed a strategy for underwater image enhancement using Contrast-Limited Adaptive Histogram Equalization (CLAHE) and Percentile methodologies. Finally, these two methodologies are blended for improving the outcomes. Two parameters, namely, Root Mean Squared Error (RMSE) and entropy have been considered for comparing the experimental results of the proposed methodology with the state-of-the-art works. It has been noticed that the proposed system performs better than already existing techniques for underwater image enhancement.

Keywords Image enhancement · CLAHE · Percentile · Blending · Contrast enhancement

1 Introduction

Underwater image processing is a process that deals with the investigation of underwater environments and analysis of their artifacts. It is an important field in the community of computer vision due to expanding interest from the past time and there is more need of underwater researchers. The capturing of clear underwater images remains a major issue for

Sr. No. 32

A Comprehensive Review on Word Recognition for Non-Indic and Indic Scripts

July 2018 · Pattern Analysis and Applications 21(2)

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Sr. No. 33

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A novel framework for writer identification based on pre-segmented Gurmukhi characters

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Abstract. Handwriting is an obtained apparatus utilized for correspondence of one's recognition or sentiments. Components that judge a person's handwriting is not merely subject to the individual's handwriting depends on the background, additionally considers like nervousness, inspiration and the reason for the handwriting. In spite of the high variation, in a man's handwriting, recent outcomes from various writers have demonstrated that it has adequate individual quality to be utilized as an identification strategy. In this paper, the authors are the pact with a novel approach to text dependent writer identification in view of pre-segmented Gurmukhi characters. The text dependent writer identification framework proposed in this paper includes distinctive stages like preprocessing, feature extraction, classification or identification. The feature extraction stage incorporates four schemes, zoning, diagonal, transitions and peak extent based features. To analyze the proposed framework execution, experiments are performed with two classifiers, namely, k-NN and SVM. SVM is also considered with linear-kernel in the present work. For experimental results, we have collected 31,500 samples from 90 different writers for 35 class problem. Maximum writer identification accuracy of 89.85% has been achieved by using a combination of zoning, transition and peak extent based features with Linear-SVM classifier when we have taken 70% data as the training set and remaining 30% data as the testing set. Using 10-fold cross validation, we have achieved an accuracy of 94.76% with a combination of zoning, transition and peak extent based features and Linear-SVM classifier.

Keywords. Feature extraction; writer identification; zoning; diagonal; transitions; peak extents; *k*-NN; SVM.

1. Introduction

Nowadays writer identification is a champion among the most captivating and testing, research regions in the field of pattern recognition. Notwithstanding the way that, sufficient reviews have been performed for writer identification framework in a few of the non-Indic scripts like Arabic, Chinese, Roman and Indic scripts, for example, Bangla, Devanagari and so forth, yet the limited work is accessible for writer identification based on the characters of the Gurmukhi script. In writer identification framework, databases with handwritten samples of known personalities are taken as training dataset, and afterward compare the questioned handwritten sample with that training dataset to recognize the identity of the writer. Writer identification can be offline writer identification or online writer identification. Here, we have considered offline writer identification framework. In this framework, the scanned images are consequently changed into ASCII codes which are normally used as a part of information processing. In the wake of being put away, it is commonplace to perform further processing to allow superior recognition. In online writer identification framework, the extraordinary pen device is utilized, which involves the pen up and pen down exchanging developments that should be possible by using sensors on the exceptional digitizer. Writer identification frameworks are further classified as text dependent and text independent methods. In text dependent methodology, a writer needs to compose the same content to perform recognition, but in text independent methodology, any text might be utilized to build up the identity of the writer [1]. The recognition rates of writer identification framework rely on the number of writers, the type of handwriting, the span of training and testing dataset. The different uses of

*For correspondence
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A novel framework for writer identification based on pre-segmented Gurmukhi characters

Munish Kumar, M K Jindal, R K Sharma & Simpel Rani Jindal

Sādhanā **43**, Article number: 197 (2018) | Cite this article

Abstract

Handwriting is an obtained apparatus utilized for correspondence of one's recognition or sentiments. Components that judge a person's handwriting is not merely subject to the individual's handwriting depends on the background, additionally considers like nervousne inspiration and the reason for the handwriting. In spite of the high variation, in a man's handwriting, recent outcomes from various writers have demonstrated that it has adequate individual quality to be utilized as an identification strategy. In this paper, the authors are t pact with a novel approach to text dependent writer identification in view of pre-segmented Gurmukhi characters. The text dependent writer identification framework proposed in this paper includes distinctive stages like preprocessing, feature extraction, classification or identification. The feature extraction stage incorporates four schemes, zoning, diagonal, transitions and peak extent based features. To analyze the proposed framework execution,

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Cybercrimes: A Proposed Taxonomy and Challenges

Harmandeep Singh Brar [1] and Gulshan Kumar [2]

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Abstract

Cybersecurity is one of the most important concepts of cyberworld which provides protection to the cyberspace from various types of cybercrimes. This paper provides an updated survey of cybersecurity. We conduct the survey of security of recent prominent researches and categorize the recent incidents in context to various fundamental principles of cybersecurity. We have proposed a new taxonomy of cybercrime which can cover all types of cyberattacks. We have analyzed various cyberattacks as per the updated cybercrime taxonomy to identify the challenges in the field of cybersecurity and

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DOI: 10.1007/978-981-10-6319-0_11 • Corpus ID: 125792470

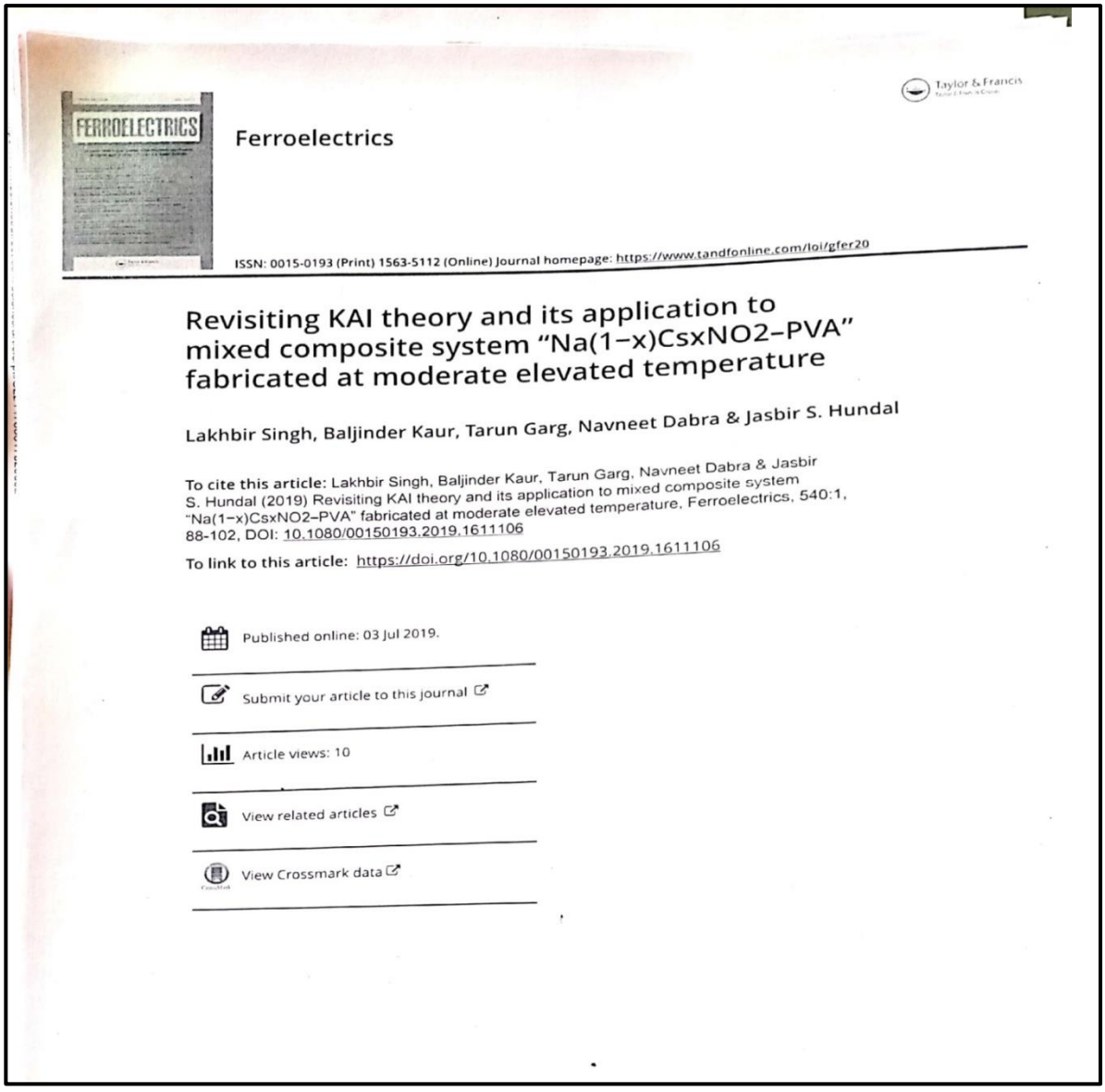
Writer Identification System for Handwritten Gurmukhi Characters: Study of Different Feature-Classifier Combinations

Sakshi, N. Garg, Munish Kumar • Published 2018 • Computer Science

In this paper, we are exploring various features and classifiers for writer identification in light of Gurmukhi text handwriting. The identification of the writers based on a piece of handwriting is a challenging task for pattern recognition. The writer identification framework proposed in this paper includes diverse stages like image preprocessing, feature extraction, training, and classification. The framework first prepares a skeleton of the character so that meaningful data about the handwriting of writers can be extracted. The feature extraction stage incorporates various plans, namely, zoning, diagonal, transition, intersection and open end points, centroid, the horizontal peak extent, the vertical peak extent, parabola curve fitting, and power curve fitting based features. In order to assess the prominence of these features, we have used four classification techniques, namely, Naive Bayes, Decision Tree, Random Forest and AdaBoostM1. For experimental results, we have collected 49,000 samples from 70 different writers. In this work, maximum accuracy of 81.75% has been obtained with centroid features and AdaBoostM1 classifier. Collapse

DEPARTMENT OF PHYSICS

Sr. No. 37



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Ferroelectrics

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Revisiting KAI theory and its application to mixed composite system "Na(1−x)CsxNO2–PVA" fabricated at moderate elevated temperature

Lakhbir Singh, Baljinder Kaur, Tarun Garg, Navneet Dabra & Jasbir S. Hundal

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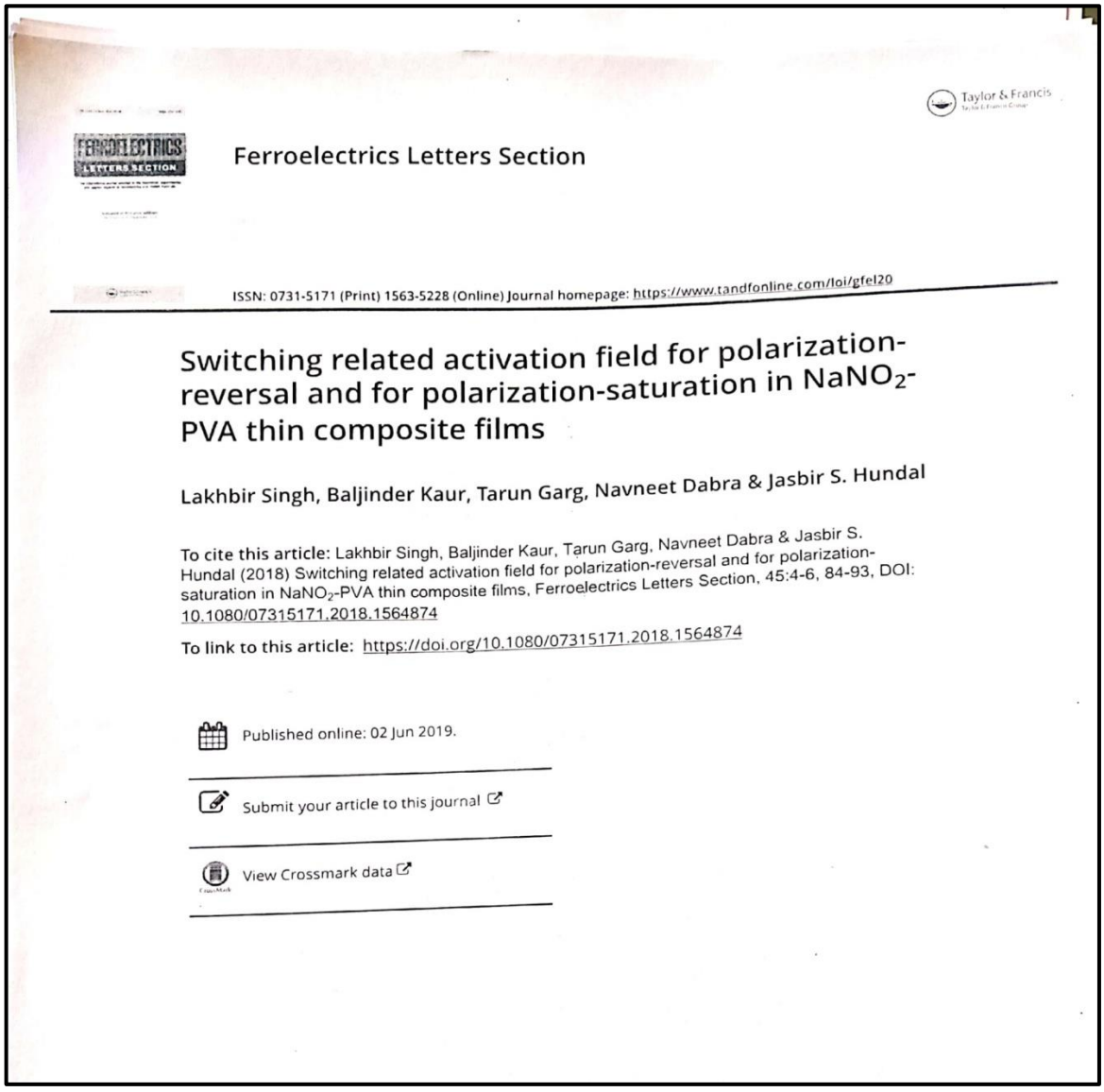
Sr. No. 38



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Ferroelectrics Letters Section

ISSN: 0731-5171 (Print) 1563-5228 (Online) Journal homepage: https://www.tandfonline.com/loi/gfel20

Switching related activation field for polarization-reversal and for polarization-saturation in $NaNO_2$-PVA thin composite films

Lakhbir Singh, Baljinder Kaur, Tarun Garg, Navneet Dabra & Jasbir S. Hundal

To cite this article: Lakhbir Singh, Baljinder Kaur, Tarun Garg, Navneet Dabra & Jasbir S. Hundal (2018) Switching related activation field for polarization-reversal and for polarization-saturation in $NaNO_2$-PVA thin composite films, Ferroelectrics Letters Section, 45:4-6, 84-93, DOI: 10.1080/07315171.2018.1564874

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A Review Paper on the Applications of Numerical Analysis in Science & Engineering

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ABSTRACT:

Numerical analysis is one of the tools of mathematics in which various algorithms are studied by using numerical approximation to find the solution of the various problems involving mathematical analysis. It has been used extensively in solving numerous applications in the field of Engineering, Medical sciences and life sciences. Many research papers have been thoroughly studied in which numerical methods have been applied in different fields. In this review paper, we have discussed the few applications of Numerical methods and softwares used in the field of civil engineering for analysis of concrete steel tower subjected to multiple load factors [1], for studies on mild steel plates [2], in working processes in pneudraulic devices [3], for design and analysis of heart valve prostheses In mechanical engineering [4], for cloth simulation in Textile engineering [5] and for Improvement of safety of aeronautical structures in aeronautical engineering [6].

Keywords: Numerical Methods, Algorithm, Software, Simulation, Applications.

INTRODUCTION:

Mathematics is a wonderful tool which itself being abstract, is so much significant that it helps to make the tough problems of science & engineering look simpler and interesting. It is considered as the building block for everything in our daily lives including electronic gadgets, mobile devices, architecture, art, money, engineering, and even sports. Numerical analysis is one of the most important branch of mathematics and computer science that helps in problem solving by creating proper algorithms, then analyzing and implementing as per requirements. The basic methodology used in numerical analysis is to design and analyze the techniques to give accurate or nearly accurate solutions to hard problems within the approximation limits . To solve problems faced in multiple disciples, many numerical methods have been developed arising in the fields of engineering like Finite element method for designing of heart valve prostheses [4], numerical integration techniques used for cloth simulation in textile engg including Euler method (explicit method), Midpoint method, Runge-Kutta method, Backward Euler method (Implicit method), Verlet method and IMEX method [5]. In civil engg different software has been applied like SCAD Office, KROSS, VEST, Solid Works Flow Simulation and Bentley Micro Station [1]. Also in the improvement of safety of aeronautical structures, the Lagrangian Finite Elements, Eulerian finite element

Sr. No. 40

Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms

Volume 429, 15 August 2018, Pages 19-26

Measurement of L XRF cross sections for elements with $33 \leq Z \leq 51$ and their interpretation in terms of L_i $(i=1–3)$ subshell vacancy decay parameters

Heena Duggal [a], Veena Sharma [a, c] ✉, H.S. Kainth [a], Sanjeev Kumar [a, b], J.S. Shahi [a], D. Mehta [a]

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https://doi.org/10.1016/j.nimb.2018.05.013

DEPARTMENT OF CHEMISTRY

Sr. No. 41

Cellulose (2018) 25:5259–5275
https://doi.org/10.1007/s10570-018-1932-y

ORIGINAL PAPER

Reductive-co-precipitated cellulose immobilized zerovalent iron nanoparticles in ionic liquid/water for Cr(VI) adsorption

Archana Kumari Sharma · Rupesh S. Devan · Meenu Arora · Rabindra Kumar · Yuan-Ron Ma · J. Nagendra Babu

Received: 10 March 2018 / Accepted: 5 July 2018 / Published online: 13 July 2018

Abstract Microcrystalline cellulose immobilized zerovalent iron nanoparticles (CI-1-3) with different loading of 6, 12 and 24% w/w Fe^0 were synthesized by $NaBH_4$ reduction under simultaneous co-precipitation of cellulose from ionic liquid ([BMIM]Cl)-water binary mixture. SEM, TEM, FTIR, VSM, XRD and XPS analysis were carried out to characterize the material. The electron microscopy studies revealed the immobilization of iron nanoparticle in the bulk and surface of microcrystalline cellulose with a size range of 20–100 nm. CI-1-3 showed strong interaction between cellulose hydroxyl moiety and nZVI, immobilized on the polymer and saturation magnetization of 3 emu/g for CI-2. The materials were studied for Cr(VI) adsorption which revealed the q_{max} value of 28.57, 58.82 and 38.48 mg Cr(VI)/g of CI-1-3, respectively.

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s10570-018-1932-y) contains supplementary material, which is available to authorized users.

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Journal: *Journal of Coordination Chemistry*
DOI: http://doi.org/10.1080/00958972.2018.1483077

Anion controlled geometrically different Cu(II) ion based coordination polymers and green synthetic route for copper nanoparticles: A combined experimental and computational insight

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The Cu(II) ion-based polymeric complexes $[Cu(2,2'\text{-bpy}).(N_3)_2]_n$ (**I**), $[Cu_2(2,2'\text{-bpy})_2.(N_3)_4]_n$ (**II**) and monomeric complex $[Cu(2,2'\text{-bpy}).(NO_3)_2].5H_2O$ (**III**) have been synthesized with rigid ($-N_3$) and aromatic (2,2'-bpy = 2,2'-bipyridyl) ligand. The rigid azide group is responsible for the formation of 1D extended structures in complexes **I** and **II** where as in the case of complex **III**, a monomeric complex is formed due to lack of a bridging group like $-N_3$, resulting in limitation in dimensionality. The thermal stability of the 1D complexes is comparatively higher than monomeric complex **III**. Hirshfeld surface analysis has also been applied to investigate other weak interactions and compared with the results from single crystal X-ray data. Due to the presence of paramagnetic metal centers and long metal···metal distances in complexes **I** and **II** and presence of lattice water molecules in complex **III**, decrease in luminescence intensities have been observed. To attain further insights into the aforementioned interesting species, some chemical concepts such as HOMO-LUMO gap, electronic chemical potential, chemical hardness, and electrophilicity index, identified as a derivative of electronic energy, have also been emphasized employing the quantum chemical calculations in the framework of the density functional theory method using the M06-2X/ 6-31G** level of study. Further, these complexes have been used to synthesize copper nanoparticles by applying a green synthetic route.

Sr. No. 43

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Research Article

Study of Antibacterial Activity of *Chenopodium album* Leaves Extract

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ABSTRACT

This study describes the antibacterial activities of three different solvent extracts of leaves of *Chenopodium album*. Methanol, acetone and chloroform extracts of *C. album* were prepared. The antibacterial activity was assessed using well plate method and were examined for the size of zone of inhibition. Different extracts were investigated against the test organisms namely *Lactobacillus*, *Bacillus subtilis* and *Escherichia coli*. The maximum activity was observed at 100% concentration of different extracts of leaves. The maximum zone of inhibition for 100% concentration were observed as *E. coli* (19 mm) and *Lactobacillus* (19 mm) in diameter respectively. *C. album* did not show any antibacterial activity against *B. subtilis*. Antibacterial activity was compared with standard Amoxicillin and it was found to be 23 mm diameter for *Lactobacillus* and 25 mm for both *E. coli* and *B. subtilis* in terms of zone of inhibition.

Sr. No. 44

MOLECULAR CRYSTALS AND LIQUID CRYSTALS
2018, VOL. 664, 142–155
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Cu(II) ion based 1D coordination polymer: Its thermal, fluorescence properties, Hirshfeld surface analysis and theoretical calculations

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ABSTRACT

In this investigation, the reaction of $[Cu(2,2'\text{-bpy})(H_2O)_4][ClO_4]_2$ with thiosemicarbazide (tsc) yielded $\mathbf{[Cu(2,2'\text{-bpy})(NCS)_2]_n}$ frameworks, which has crystallized in noncentrosymmetric space group (Cc). The complex has been characterized by elemental analyses, FT-IR spectrum, powder X-ray diffraction analysis and single-crystal diffraction analysis. This complex is 1D polymer with high thermal stability and showing positive cotton effect. These results have provided some interesting insights into its nonlinear optical applications. Solid state fluorescence spectrum shows broad photoluminescence emission bands, which are assigned as the bands of intra-ligand charge transfer and MLCT (metal to ligand charge transfer) transitions. During investigation of various intermolecular interactions, both single crystal X-ray diffraction and Hirshfeld surface analysis give comparable results.

KEYWORDS

Noncentrosymmetric; nonlinear; positive cotton effect; thermal stability

Introduction

The long standing challenge of designing the reaction conditions that might led to the formation of desired network is just beginning to be addressed with success [1–10]. The basic design of the network is interplay between stereochemical requirement of the metal ion and spatial disposition of the organic ligand [11–15] Weaker forces such as H-bonding, $\pi\cdots\pi$ interactions and interpenetration play an important role in packing to settle the final architecture of the product [16–24]. Subtle changes are sometimes observed with minor changes in reaction conditions like solvent, pH, counter-anion, stoichiometry etc [25–27]. Among, various possible interactions, which can influence the topology of framework, the H-bonding interactions are quite common by virtue of their directionality and specificity. These interactions are further advantageous, by varying the number and arrangement of H-donors, acceptors, steric factors on ligand and spacer desired modifications of network which can be achieved.

DEPARTMENT OF MATHEMATICS

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ijpam.eu

ON EQUIVALENCE OF MODIFIED TRIGONOMETRIC SUMS

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Abstract: We establish L^1-convergence equivalence of modified sums introduced by Rees and Stanojević and Kumari and Ram. It is shown that all the results regarding integrability and L^1-convergence of cosine series (or sine series) which have been established by different authors so far by using modified cosine sums or sine sums of Rees and Stanojević can also be proved by considering the corresponding sums introduced by Kumari and Ram under same classes of coefficients. We also introduce modified cosine and sine sums and compare them with modified sums introduced by Kaur and Bhatia.

AMS Subject Classification: 42A20, 42A32
Key Words: L^1-convergence, Fezér kernel, modified cosine sums

1. Introduction

Let

$$\frac{a_0}{2} + \sum_{k=1}^{\infty} a_k \cos kx \tag{1.1}$$

be the cosine series.

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§Correspondence author

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Special Issue

ijpam.eu

EVALUATE APPROXIMATE SOLUTIONS OF NONLINEAR VOLTERRA-FREDHOLM LNTEGRAL EQUATIONS WITH MODIFIED LAPLACE ADOMIAN DECOMPOSITION METHOD WHICH IS BASED ON MODIFIED NEWTON RAPHSON METHOD

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ABSTRACT

In this paper, a new numerical approach for solving the non-linear Volterra-Fredholm integral equations by modified Laplace Adomian decomposition method. This method is based on Modified Newton Raphson method instead of Adomian Polynomial. With the help of Modified Newton Raphson method approximate solutions of non-linearVolterra-Fredholm integral equations with small computation as compared with Adomian decomposition method. Serving as an examples are comprises to show that the viability and appropriateness of this technique.

KEYWORDS: Non-linearVolterra-Fredholm integral equations, Adomian decomposition method, modified Laplace Adomian decomposition method, Modified Newton Raphson method.

INTRODUCTION

The taking point of non-linear Volterra-Fredholm integral equations which have mesmerized development from the past many years. The non-linear Volterra-Fredholm integral equations come into view various biological and physical models. There are a large number of expertise both analytical and numerical point of view for calculating non-linear Volterra-Fredholm integral as Varational Iteration Method, Adomian decomposition method, finite element method, Homotopy analysis method, collocation method, Homotopy perturbation method and many more.

One of the well organized methods for evaluating non-linear Volterra-Fredholm integral equations is the decomposition techniques. Adomian decomposition method was brought by George Adomian in 20th century. Actually, this method produces an infinite series solution of the equation and nonlinear part is degrading into an infinite series of Adomian Polynomial.

In this work, Laplace transforms method in mixture with Adomian decomposition method is give out and modified for non-linear Volterra-Fredholm integral equations. Many approximate solutions are finding based on solving nonlinear System of Mixed Volterra Fredholm Integral Equations by Using Variational Iteration Method, collocation method, Homotopy perturbation method [1, 5, 15, 16],. A Review of The Decomposition Method and Some Recent Results for Nonlinear Equations [2], Variational Iteration and Homotopy Perturbation Methods for Solving Fredholm-Volterra Integro-Differential Equations [3, 4]. A Laplace decomposition technique relate with nonlinear differential equation by Khuri in [10]. The method was related with delay differential equations and a consideration was made at Adomian decomposition and tau methods in [11] to solution the Volterra integro-differential equations. Solving nth-order integro-differential equations using the combined Laplace transform-Adomian decomposition method modified Laplace Adomian decomposition method [6, 7, 8, 13, 14]. Hence, there are many areas where Laplace Adomian decomposition method is effective. In the present paper, we make the centre of interest to evaluate non-linear Volterra-Fredholm integral equations [5,17,19,22,24].

UNIVERSITY BUSINESS SCHOOL

Sr. No. 47

2018

Impact of Buyback of Shares on Firm Value: An Empirical Evidence from India

Document Type : Research Paper

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10.22059/IJMS.2018.246143.672914

Abstract

The present study examines the impact of capital employed in buyback of shares on firm value for 180 firms listed in the Bombay Stock Exchange of India. The issue of buyback of shares in the period from 2006 to 2016 was examined. The firm value is measured by a proxy, *enterprise value*, as a substitute of share price. The results suggest that the firm value differs from pre and post buyback of shares. The findings of this study further imply that the proportion of paid-up equity capital employed by companies for buyback of shares does not have any significant effect on firm value.

Keywords

Buyback of shares ; enterprise value ; Firm Value ; capital employed

Main Subjects

corporate finance

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Sr. No. 48

Energy Efficient Algorithm for Wireless Sensor Network using Fuzzy C-Means Clustering

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***Abstract*—Energy efficiency is a vital issue in wireless sensor networks. In this paper, an energy efficient routing algorithm has been proposed with an aim to enhance lifetime of network. In this paper, Fuzzy C-Means clustering has been used to form optimum number of static clusters. A concept of coherence is used to eliminate redundant data generation and transmission which avoids undue loss of energy. Intra-cluster and inter-cluster gateways are used to avoid nodes from transmitting data through long distances. A new strategy has been proposed to select robust nodes near sink for direct data transmissions. The proposed algorithm is compared with LEACH, MR-LEACH, MH-LEACH and OCM-FCM based upon lifetime, average energy consumption and throughput. From the results, it is confirmed that the performance of the proposed algorithm is much better than other algorithms and is more suitable for implementation in wireless sensor networks.**

***Keywords*—WSN; clustering; sleep-awake; virtual grids; multi-hop; routing**

I. Introduction

Wireless Sensor Networks (WSNs) consist of thousands of micro-sized low power Sensor Nodes (SNs) randomly deployed in the Sensor Field (SF). These SNs sense local environmental statistics, aggregate and communicate sensed information to sink. For each operation SN consumes its battery power. As SFs are hostile in most of the applications of WSN, it is not possible to replace batteries of SNs [1]. In order to enhance lifetime of network, the routing algorithms in WSN mainly focus on energy efficiency.

Clustering is one of the most effective techniques in routing to preserve the energy of the network. The whole network is organized into small groups of SNs called clusters. In each cluster, one node is elected as Cluster Head (CH) which performs the task of collecting data from all Cluster Member (CMs) nodes, aggregation of data and forwarding it to the sink directly or in multi-hop manner [2], [3]. The aggregation may or may not be perfect depending upon the relation between the sensed data. Perfect aggregation means many k-bit data packets are compressed to a single k-bit packet. Perfect-fusion, a simple technique has attracted many researchers' interest [2], [4]. LEACH (Low Energy Adaptive Clustering Hierarchy) [2], EEUC (Energy Efficient Unequal Clustering) [3], IB-LEACH (Intra-Balanced LEACH) [5], MR-LEACH (Multi-hop Routing LEACH) [6], MH-LEACH (Multi-Hop LEACH) [7], EMRP (Energy efficient multi-hop routing protocol) [8], ACEEC [9], OCM-FCM (Optimal Clustering Mechanism Fuzzy-C Means) [10], SEECP (Stable Energy Efficient Clustering Protocol) [11] and MLRC (Multi-Level Route-aware Clustering) [12] are some of the popular clustering protocols. In these protocols, all nodes in the network actively sense from the environment and continuously generate data. The nodes which are placed close to each other tend to generate redundant data due to phenomenon of coherence. A major amount of network energy is wasted in transmitting redundant data to sink which directly affects the network lifetime. Protocols like Span [13] and LEACH-SM (LEACH Spare Management) [14] keep a small subset of SNs active in such a way that these nodes cover the whole network while other nodes in the network are kept in sleep mode. In [15] an energy efficient sleep scheduling has been proposed in order to maintain network coverage and connectivity. Consequently, the energy consumed per round is reduced, thus, increasing the WSN lifetime.

Major part of energy is consumed by SNs in transmitting data which is proportional to the distance between sensor nodes raised to power $\beta(\beta \geq 2)$. Therefore, long-distance transmissions should be minimized for optimizing the usage of network energy [16]. Multi-hop data transmission between Gate Way nodes (GWs), CHs and sink can be used to reduce energy consumption, but SNs (may be CHs or GWs) near sink are more probable to be selected for transmitting the data to sink, resulting in their early death and thus, effecting the overall performance of the network.

In many clustering algorithms, number of clusters in each round is not fixed and employs poor CH election and cluster formation techniques. As a result, total inter and intra cluster distance becomes large, resulting in high energy consumption of the network. Therefore, soft computing techniques can be beneficially employed in cluster based routing protocols [16], [17]. Fuzzy-C means clustering groups the SNs based upon their degree of membership in each cluster. The aim is to minimize the sum of distances between the SNs and the centroid of their cluster. OCM-FCM uses Fuzzy-C means clustering to form more uniform and correlated clusters in order to improve the lifetime of WSN [10].

In this paper, a multi-hop efficient routing algorithm for WSN has been proposed. The algorithm emphasizes to optimize the energy usage in the network in order to enhance the network lifetime. It eliminates redundant data generation in the network by keeping only one node active from the set of nodes that are sending redundant data and also renders full network coverage. Initially, the whole network is divided into optimal number of static clusters using FCM. CH in each

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SPC

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Research paper

A novel review on various energy efficient routing algorithms in wireless sensor networks

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Abstract

In the past few decades, Wireless sensor networks have exhibited a significant amount of growth and have been used in various applications like traffic control, environment monitoring etc. It comprises an accumulation of sensor nodes that sense the data from their surroundings and relay it to the base station. The network suffers from the limited energy constraints since the sensor nodes are mobile nodes and they run out of battery after a considerable amount of time. To overcome this, a certain level of heterogeneity is introduced among the nodes in terms of energy consumption to sustain the overall network lifetime. Various protocols are developed to prolong the network longevity. Among those, PEGASIS (Power-Efficient Gathering in Sensor Information Systems) and LEACH (Low- Energy Adaptive Clustering Hierarchy) are the significant ones, which ensures power-efficient gathering of the data in the sensor networks. This paper attempts to discuss the different aspects of PEGASIS and LEACH and their advantages and disadvantages in detail.

1. Introduction

Recent amelioration in the MEMES-based technology and digital electronics has made it possible to design the low -power micro sensors [1 3] that are sensitive to assimilate the data from their surroundings. These micro sensors are deployed in an area which can perceive, locate and collect the information and forward it to a centralized authority like base station. These sensors are deployed in huge amounts autonomously and can connect the logical world and the physical world [4] by sending the data to the destination terminal in either a single hop or multi-hop manner. The major flaw of these networks is plenty of sensor nodes and limited energy. Due to various limitations inherent in a wireless network like limited transmission capability, battery power etc., effective routing becomes a strenuous task. With an aim to make communication reliable and efficient, routing protocols [5, 6] are employed that aid in discovering and maintaining the paths that are energy-LEACH [7] and PEGASIS [8] and perform their comparative analysis in detail.

Rest of the paper is organized as follows: Section 2 discusses elaborately the related work in the literature, section 3 compares the protocols: LEACH and PEGASIS in terms of various parameters, section 4 discusses issues in the protocols and section 5 concludes the study.

2. Related work

Extensive research has been carried out so far to develop efficient routing protocols suited for the vigorous wireless sensor network environment.

Chourse et.al [9] discussed LEACH protocol in detail. Several versions of LEACH like TL-LEACH, M-LEACH, and LEACH-C have been proposed. A mathematical methodology is proposed to calculate the cluster head and various merits and demerits of

Sr. No. 50

Multimed Tools Appl (2018) 77:21557–21570
https://doi.org/10.1007/s11042-017-5587-8

An efficient content based image retrieval system using BayesNet and K-NN

Munish Kumar[1] · **Payal Chhabra**[2] · **Naresh Kumar Garg**[2]

Received: 1 June 2017 / Revised: 2 November 2017 / Accepted: 27 December 2017 /
Published online: 12 January 2018

Abstract In the progression of web and multi-media, substantial measure of pictures is created and appropriated, to viably store and offer such vast measure of bulky database is a big issue. In this way, Content Based Image Retrieval (CBIR) techniques are used to retrieve images from the massive database based on the desired information. In this proposed work, we are considering two local image feature extraction methods, namely, SIFT and ORB. Scale Invariant Feature Transform (SIFT) is used for detecting features and feature descriptor of an image. Oriented Fast Rotated and BRIEF (ORB) uses FAST (Features from Accelerated Segment Test) key point detector and binary BRIEF (Binary Robust Independent Elementary Features) descriptor of an image. K-Means clustering algorithm is also used in the present paper for analyzing the data, which generates number of clusters using the descriptor vector. Locality Preserving Projection (LPP) is employed to reduce the length of the feature vector to enhance the performance of image retrieval system. For classification, we have considered two classifiers, namely, BayesNet and K-Nearest Neighbours (K-NN). Wang image dataset has been used for experimentation work. We have accomplished the highest precision rate of 88.9% using proposed CBIR system.

Keywords CBIR · SIFT · ORB · K-Means · LPP · BayesNet · K-NN

1 Introduction

Measures of substance in digital images are expanded and to find out specific class of images in view of substance from a massive database is a difficult task. So, Content Based Image Retrieval

Sr. No. 51

Multimed Tools Appl (2018) 77:26545–26561
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Underwater image enhancement using blending of CLAHE and percentile methodologies

Diksha Garg[1] · Naresh Kumar Garg[1] · Munish Kumar[2]

Received: 21 August 2017 / Revised: 27 January 2018 / Accepted: 11 March 2018 /
Published online: 20 March 2018

Abstract In this paper, a method has been proposed for enhancement of underwater images commonly suffering from low contrast and degraded shading quality. The entirety of the image is changed when we move to capture of images, from air to the water. During capturing some absorption, reflection and scattering effects are induced in the form of contrast, quality and noise as the images look hazy or blurred. This makes one shading to overwhelm the image. For use of underwater resources and overcome these factors the enhancement of the images is required. So, in this paper, we proposed a strategy for underwater image enhancement using Contrast-Limited Adaptive Histogram Equalization (CLAHE) and Percentile methodologies. Finally, these two methodologies are blended for improving the outcomes. Two parameters, namely, Root Mean Squared Error (RMSE) and entropy have been considered for comparing the experimental results of the proposed methodology with the state-of-the-art works. It has been noticed that the proposed system performs better than already existing techniques for underwater image enhancement.

Keywords Image enhancement · CLAHE · Percentile · Blending · Contrast enhancement

1 Introduction

Underwater image processing is a process that deals with the investigation of underwater environments and analysis of their artifacts. It is an important field in the community of computer vision due to expanding interest from the past time and there is more need of underwater researchers. The capturing of clear underwater images remains a major issue for

Sr. No. 52

Neural Computing and Applications (2020) 32:2725–2733
https://doi.org/10.1007/s00521-018-3677-9

ORIGINAL ARTICLE

Content-based image retrieval system using ORB and SIFT features

Payal Chhabra[1] · Naresh Kumar Garg[1] · Munish Kumar[2]

Received: 4 October 2017 / Accepted: 9 August 2018 / Published online: 18 August 2018

Abstract
Measures of components in digital images are expanded and to locate a specific image in the light of substance from a huge database is sometimes troublesome. In this paper, a content-based image retrieval (CBIR) system has been proposed to extract a feature vector from an image and to effectively retrieve content-based images. In this work, two types of image feature descriptor extraction methods, namely Oriented Fast and Rotated BRIEF (ORB) and scale-invariant feature transform (SIFT) are considered. ORB detector uses a fast key points and descriptor use a BRIEF descriptor. SIFT be used for analysis of images based on various orientation and scale. *K*-means clustering algorithm is used over both descriptors from which the mean of every cluster is obtained. Locality-preserving projection dimensionality reduction algorithm is used to reduce the dimensions of an image feature vector. At the time of retrieval, the image feature vectors are stored in the image database and matched with testing data feature vector for CBIR. The execution of the proposed work is assessed by utilizing a decision tree, random forest, and MLP classifiers. Two, public databases, namely Wang database and corel database, have been considered for the experimentation work. Combination of ORB and SIFT feature vectors are tested for images in Wang database and corel database which accomplishes a highest precision rate of 99.53% and 86.20% for coral database and Wang database, respectively.

Keywords CBIR · ORB · SIFT · *K*-means · LPP

1 Introduction

In the development of Internet and multimedia, expansive measure of images is produced and dispersed yet to share and store such a lot of information effectively is a noteworthy issue. The most effective method to retrieve desired information from a bulky database is as yet a major issue. So, content-based image retrieval (CBIR) techniques are used to retrieve the images from bulky database based on the desired information. In CBIR, the stored database and query image features are extracted and compared with each other, from which most comparable outcomes are come back to the client. In the present days, many of the real-world image-based retrieval applications used CBIR strategies. For example, physician may use CBIR strategy to retrieve comparative patient issues from a database, so that a best decision can be taken by the physician in the treatment of patients. The CBIR computation complexity is high because of the huge measure of database. Numerous strategies have been proposed in the past decades for retrieval of images based on their contents from bulky database, but issues for extracting features and results of the proposed systems are not appropriately satisfactory. To dump these issues, we present another technique using SIFT and ORB feature extraction techniques. We utilized two component extraction techniques in our examination work in light of the fact that a solitary element extraction strategy does not demonstrate all elements in an image, so the combination of extraction techniques preferred over a solitary one. The SIFT descriptor utilizes a 128-element feature dimensions in one key point and ORB descriptor

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Sr.No.53

Short Communication | Published: 12 September 2018

Facial Emotion Recognition System Based on PCA and Gradient Features

Malika Arora, Munish Kumar ✉ & Naresh Kumar Garg

National Academy Science Letters **41**, 365–368(2018)

Abstract

An efficient framework is proposed to deal with the facial emotions recognition problem. Since facial expressions result from facial muscle deformations, gradient features are exceptionally sensitive to the object deformations, so apply the gradients to encode these facial components as features. Then further it is joined by the testing process that classifies emotions and results are measured in terms of false acceptance rate, false rejection rate, and recognition accuracy. Proposed system was trained using random forest classifier to recognize the facial emotions. Japanese Female Facial Emotion (JAFFE) database consist of 5 typical emotions, namely, sad, happy, angry, neutral and surprise is considered for experimental results. Proposed framework can be used in real life applications like electroencephalogram in collaboration with brain computer interfaces. The average classification rate on the JAFEE dataset reaches 91.3%. In the proposed system hybridization of Gradient filter, PCA and PSO has been done for

ELECTRONICS AND COMMUNICATION ENGINEERING

Sr. No. 54

Wireless Pers Commun
https://doi.org/10.1007/s11277-018-5791-5

MAI Mitigation in MC-CDMA Systems Using Social Impact Based Wireless Communication Algorithm

Anmol Kumar[1] · Jyoti Saxena[2] · Ritesh Kumar[3] · Rishemjit Kaur[3]

Abstract In this paper a novel optimization technique i.e. Social Impact based Wireless Communication Algorithm (SIWCA) has been applied on multi-carrier code division multiple access (MC-CDMA) communication systems to mitigate multiple access interference (MAI). MC-CDMA is being researched as an alternate technology for fourth generation (4G) as well as fifth generation (5G) mobile systems. MAI has been a major concern for the CDMA based systems. MAI increases the bit error rate in a MC-CDMA system, which in turn degrades the system performance. The SIWCA is based on the social impact theory of human behavior in the society. The proposed approach combines the

Sr. No. 55

Soft Comput
DOI 10.1007/s00500-017-2775-4

METHODOLOGIES AND APPLICATION

Design optimization of CPW-fed microstrip patch antenna using constrained ABFO algorithm

Nancy Gupta[1,4] · Jyoti Saxena[2] · Kamaljit Singh Bhatia[3]

Abstract This paper explores the potential of bio-inspired soft computational technique known as adaptive bacterial foraging optimization (ABFO) for the joint optimization of geometrical parameters of compact coplanar waveguide (CPW)-fed microstrip patch antenna with defected ground structure. The presented research work is divided into three phases. In the initial phase, the intended antenna is designed and analyzed using finite element-based electromagnetic simulator Ansoft HFSS 15.0. In the subsequent phase, the analytical equations of various design parameters are modeled using curve fitting technique in MATLAB and root mean square error-based fitness functions are derived for individual design parameters. Then, a joint cost function is formulated from individual fitness functions for evaluation in optimization algorithm. Adaptive BFO is an improve-modified algorithm is efficaciously used for joint optimization of specific design parameters to transform 'dual-band performance' into 'broadband performance' for high-speed point-to-point wireless services. The performance of design optimization using constrained ABFO is compared with the original BFO, particle swarm optimization (PSO), hybrid bacterial foraging–particle swarm optimization (BF-PSO), invasive weed optimization (IWO) and artificial bee colony (ABC) techniques to scrutinize its adequacy.

Keywords Coplanar waveguide feed · Microstrip patch antennas · Defected ground structure · Curve fitting · Constrained adaptive bacterial foraging optimization

Sr. No. 56

Electronic Materials Letters
https://doi.org/10.1007/s13391-018-0025-2

Thin and Broadband Two-Layer Microwave Absorber in 4–12 GHz with Developed Flaky Cobalt Material

Neeraj Gill[1,2,3] · Jaydeep Singh[2] · Smitha Puthucheri[2] · Dharmendra Singh[1,2]

Received: 7 August 2017 / Accepted: 9 October 2017

Abstract
Microwave absorbing materials (MAMs) in the frequency range of 2.0–18.0 GHz are essential for the stealth and communication applications. Researchers came up with effective MAMs for the higher frequency regions, i.e., 8.0–18.0 GHz, while absorbers with comparable properties in the lower frequency band are still not in the limelight. Designing a MAM for the lower frequency range is a critical task. It is known that the factors governing the absorption in this frequency predominantly depend on the permeability and conductivity of the material, whereas the shape anisotropy of the particles can initiate different absorption mechanisms like multiple internal reflections, phase cancellations, surface charge polarization and enhanced conductivity that can promote the microwave absorption towards lower frequencies. But the material alone may not serve the purpose of getting broad absorption bandwidth. With the effective use of advanced electromagnetic technique like multi-layering this problem may be solved. Therefore, in this paper, a material with shape anisotropy (cobalt flakes with high shape anisotropy) has been prepared and a two-layer structure is developed which gives the absorption bandwidth in 4.17–12.05 GHz at a coating thickness of 2.66 mm.

Keywords Cobalt flakes · Shape anisotropy · Microwave absorbing material · Multi-layer absorber · Impedance matching · Reflection loss bandwidth

1 Introduction

and permeability mainly contribute towards the microwave absorption at higher frequencies. On the other hand, mag-

Sr. No. 57

VIKOR MADM Based Optimization Method For Vertical Handover In Heterogeneous Networks

pdf

Published Oct 31, 2018

DOI
https://doi.org/10.25728/assa.2018.18.3.563

Silki Baghla
IKG Punjab Technical University

Savina Bansal

Abstract

Optimum network selection is one of the major issues for vertical handover in heterogeneous networks so as to provide requisite quality of service (QoS) to the user. In this context, multiple attribute decision-making algorithms provide a promising solution. Normalization process used can play a vital role in selecting the most appropriate network during the handover process.In this work, vector normalized preferred performance based (V-VPP) normalization technique is proposed and applied to MADM based VIKOR algorithm. Performance of the proposed technique is analyzed extensively by varying QoS parameters and weighting methods for different traffic classes in a heterogeneous network The results obtained are

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ORIGINAL RESEARCH

An approach to energy efficient vertical handover technique for heterogeneous networks

Silki Baghla[1] · Savina Bansal[2]

Received: 18 May 2017 / Accepted: 16 February 2018

Abstract Energy consumption is critical issue in heterogeneous networks comprising of proliferation of different types of wireless networks. The next generation mobile terminals are equipped with multiple interfaces to associate themselves with one or more networks at the same time. Vertical handover techniques facilitate the user to have ubiquitous access with desired quality of service but increased energy consumption with time. Thus energy aware vertical handover techniques are highly desirable in present era of heterogeneous networks. In this work, an approach to energy efficient vertical handover technique has been suggested and analyzed for different traffic classes. The proposed approach is based on vector normalized preferred performance based VIKOR algorithm (V-VPP) for performing handover. It resulted in lesser energy con-

1 Introduction

Next generation wireless networks will comprise of coexistence of WLAN, WIMAX and Cellular networks; each offering different quality of services to the user. The mobile terminals are also equipped with multiple interfaces to have requisite services from available networks. This flexibility will be achieved at the cost of significant energy consumption at network side as well as mobile terminals. The energy is also consumed when the mobile terminal is in sleep or idle mode. Thus energy saving schemes is used to facilitate the user with desired quality of services for a long time. When the user moves in overlapping area of different wireless networks, vertical handover techniques are employed for optimum network selection [1]. The

DEPARTMENT OF MECHANICAL ENGINEERING

Sr. No. 59

Article

Thermal and surface characterization of ABS replicas made by FDM for rapid tooling applications

November 2017 · Rapid Prototyping Journal 24(3):00-00

DOI:10.1108/RPJ-07-2016-0110

Authors:

Jasgurpreet Singh Chohan

Roopkaran Singh
University of the Fraser Valley

Kamaljit Singh Boparai

Sr. No. 60

Journal of Manufacturing Processes
Volume 31, January 2018, Pages 80-95

Review

Development and surface improvement of FDM pattern based investment casting of biomedical implants: A state of art review

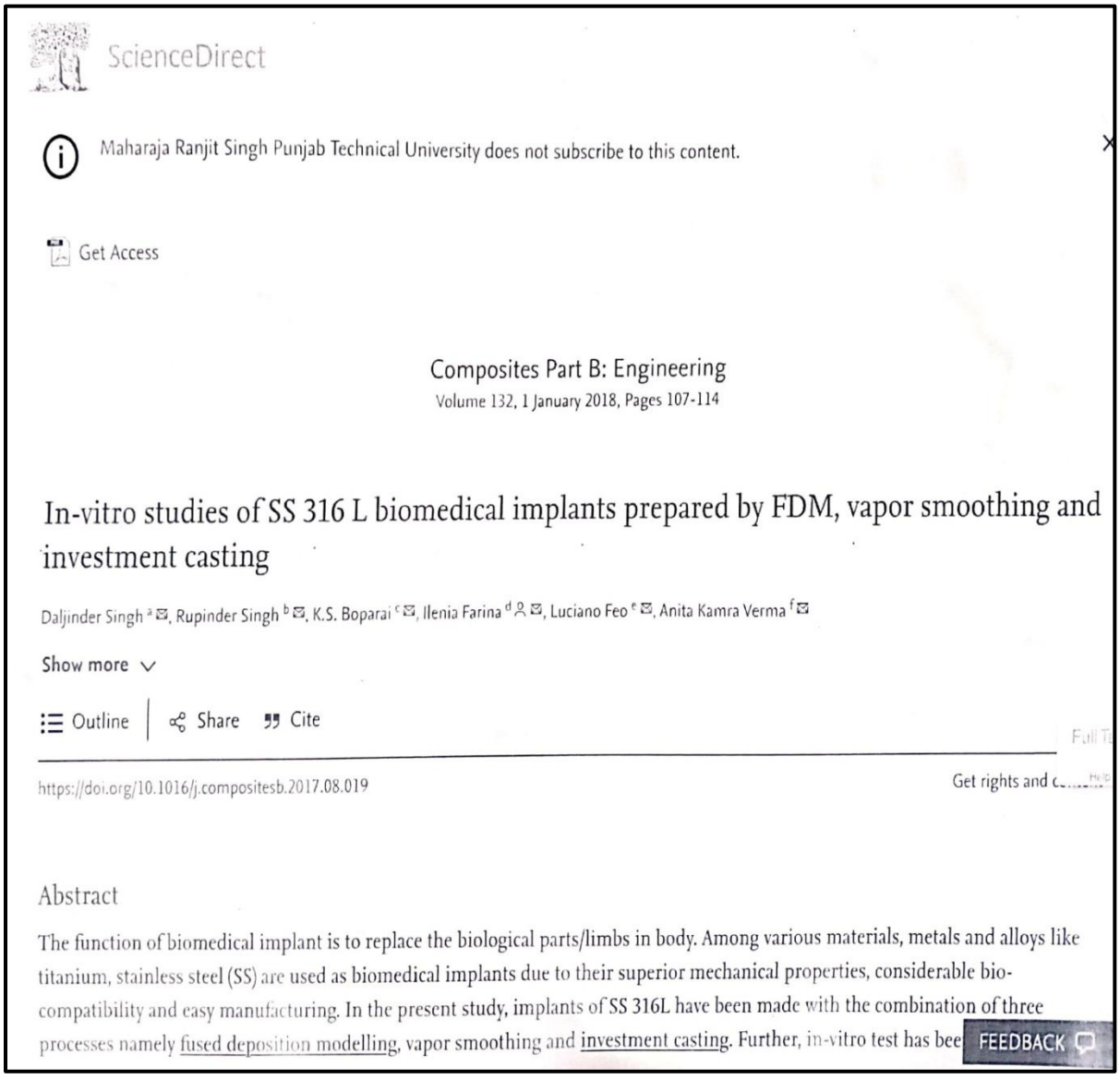
Daljinder Singh [a], Rupinder Singh [b], Kamaljit Singh Boparai [c]

https://doi.org/10.1016/j.jmapro.2017.10.026

Abstract

Fused deposition modelling (FDM) is one of the additive manufacturing (AM) techniques, emerging as a favorable technique in different industries including medicine. The most distinctive purpose of AM in medical industries is to design and produce medical devices, instrumentation and implants. In association with other techniques, it leads to improvement in services offered to society for e.g., in combination with investment casting (IC) process it can produce bio-implants with complex geometries and features at a comparatively less cost and in a less interval of time. While, IC is also a very promising technique to produce net-shape parts with high accuracy and surface finish, however the surface finish of the final casting greatly depends upon the finishing quality of FDM pattern. But, due to inherent limitations of the process, FDM patterns face surface roughness issues, therefore the need of processing of patterns before/during the production or after the fabrication of the pattern, arises. So, this paper will spot a light on development of casted implants and some surface improvement techniques (pre-processing and post-processing) which can be implemented on patterns to enhance its surface properties and their effects will be studied on the pattern as well as casting. It will also focus on the implant

Sr. No. 61



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Composites Part B: Engineering
Volume 132, 1 January 2018, Pages 107-114

In-vitro studies of SS 316 L biomedical implants prepared by FDM, vapor smoothing and investment casting

Daljinder Singh [a], Rupinder Singh [b], K.S. Boparai [c], Ilenia Farina [d], Luciano Feo [e], Anita Kamra Verma [f]

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https://doi.org/10.1016/j.compositesb.2017.08.019

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Abstract

The function of biomedical implant is to replace the biological parts/limbs in body. Among various materials, metals and alloys like titanium, stainless steel (SS) are used as biomedical implants due to their superior mechanical properties, considerable bio-compatibility and easy manufacturing. In the present study, implants of SS 316L have been made with the combination of three processes namely fused deposition modelling, vapor smoothing and investment casting. Further, in-vitro test has bee

FEEDBACK

Sr. No. 62

Journal of Materials Processing Technology
Volume 261, November 2018, Pages 266-279

Oxidation behaviour of T91/347H welds

Rutash Mittal [a], Buta Singh Sidhu [b]

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https://doi.org/10.1016/j.jmatprotec.2018.05.020

Abstract

T91 HAZ and weld metal zones of the T91/347H weldment exposed to simulated boiler environment have been observed to oxidize at higher rate and develop higher scale thickness than other zones. Optical microscopy, SEM/EDS and X ray mapping analysis have indicated lower Cr content in T91 HAZ by virtue of development of Cr rich carbides and delta ferrites in as welded condition. Availability of chromium carbides, intermetallics and martensitic morphology as well as the delta ferrites in an un-oxidized T91 HAZ zone has been found to be the main reason for the weak oxidation resistance of this zone. The higher corrosion in T91 HAZ may be by virtue of the lower presence of protective phases and higher availability of non protective oxides of Fe_3O_4 and Fe_2O_3. Higher corrosion of weld metal (WM) zone may be because of Cr depletion and higher oxides of iron.

Sr. No. 63

Microstructural and Mechanical Studies of T91/T22 Welded Joints

Rutash Mittal[1] · Buta Singh Sidhu[2]

Received: 30 October 2017 / Accepted: 12 April 2018 / Published online: 2 May 2018

Abstract Comparative studies have been performed to decide an appropriate combination of welding process and filler material by virtue of microstructural evolution, micro-hardness studies, tensile strength and fractographic analysis. Manual arc welding and tungsten inert gas welding processes are used along with different filler materials to manufacture T91/T22 welded joints. Studies with the purpose of comparison and evaluation of different zones of the weldments have been carried out. The highest value of micro-hardness observed on the T91 HAZ of the weldments may be attributed to martensitic structure of the region. The fracture morphology of both the weldments obtained from T22 BM has revealed the ductile fracture. Comparatively higher tensile strength (578 MPa) of T91/T22, GTAW combination is noticed by virtue of lower heat input. The better performance of T91/T22, GTAW weldment can be quoted on the basis of better joint integrity, tensile strength and ductility (26.4%).

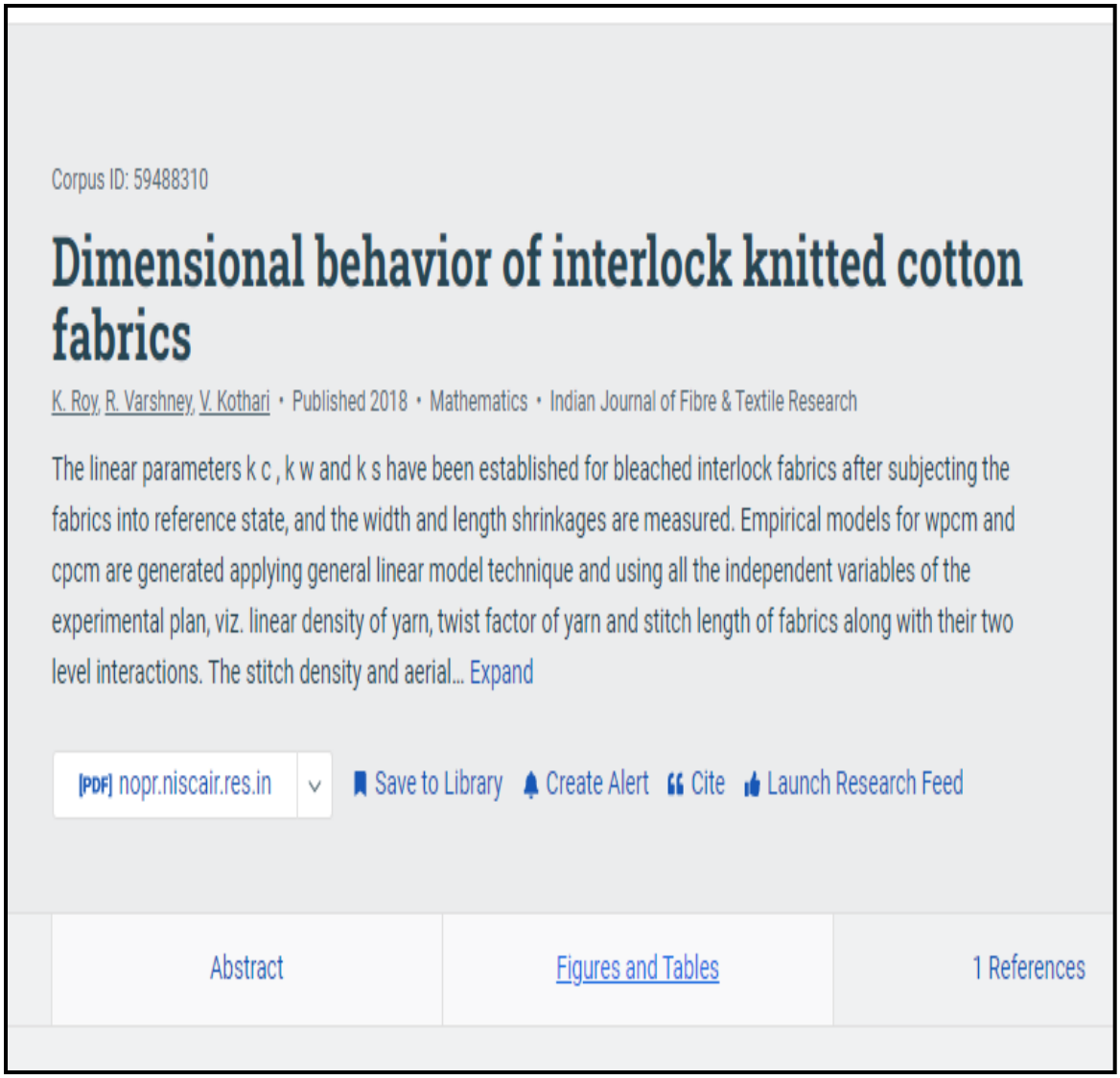
Keywords Dissimilar steel weldments · Manual arc welding · Tungsten inert gas welding · Microstructures · Tensile test · Fractography

1 Introduction

Ferritic steels are used as the main structural metals in boilers of various power generating industries due to their high temperature corrosion resistance and higher strength [1]. Dissimilar metal weldments using different forms of heat resistant steels are employed in elevated temperature applications as in chemical, petrochemical, nuclear and processing industries. Dissimilar metal weldments comprising different grades of steels are commissioned in various locations of boiler circuits [2]. Joining of different materials helps to satisfy the economical and technological aspects as well as service requirements [3]. The adoption of these types of metal joints has been quoted to give flexibility in the working of system with optimized use of each material [4]. The fast requirements of newer structural alloys and materials propel the use of dissimilar welded joints in the industry [5]. However the dissimilar weldments have observed higher failure rate by virtue of various reported reasons [6, 7]. Carbon migration has been reported to occur across the weld interface from low alloy to high alloy ferritic steel during exposure to high temperature. The carbon migration propels the development of carbon denuded section characterized by low micro-hardness in the low alloy ferritic steel and carbon enriched section with higher values on the high alloyed ferritic steel [2]. A detailed critique of various dissimilar metal weldments of

DEPARTMENT OF TEXTILE

Sr. No. 64



Corpus ID: 59488310

Dimensional behavior of interlock knitted cotton fabrics

K. Roy, R. Varshney, V. Kothari • Published 2018 • Mathematics • Indian Journal of Fibre & Textile Research

The linear parameters k c , k w and k s have been established for bleached interlock fabrics after subjecting the fabrics into reference state, and the width and length shrinkages are measured. Empirical models for wpcm and cpcm are generated applying general linear model technique and using all the independent variables of the experimental plan, viz. linear density of yarn, twist factor of yarn and stitch length of fabrics along with their two level interactions. The stitch density and aerial... Expand

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Abstract | Figures and Tables | 1 References

Sr. No. 65

Article

Effect of MVS process parameters on knitted fabric characteristics

September 2018 · Indian Journal of Fibre and Textile Research
43(3):330-335

Authors:

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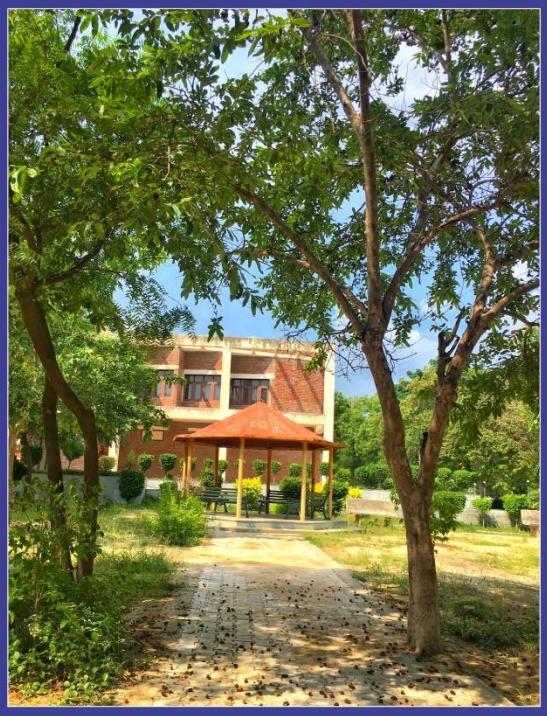

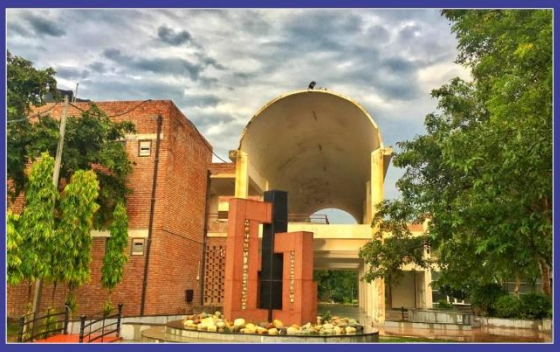

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