A Review on Molecular Screening Techniques for Identifying Adulterants in Meat Products

Ann Mary C Simon
School of Biosciences
Mar Athanasios College for Advanced Studies Tiruvalla
(MACFAST), Kerala, India-689 101

ABSTRACT

Due to their high market value and increasing demand, meat products are often subjected for adulteration. Adulteration literally means debasing something or mixing it with some inferior or harmful substances. The determination of food authenticity and detection of adulteration are major concern in food industry and are increasing attention nowadays. Detection of species adulteration in meat products is important in consumer protection and food labelling law enforcement. Identification of the species of origin in meat samples is relevant to consumers for no possible economic loss from fraudulent adulterations, medical requirements of individuals who might have specific allergies and for religious reasons. Molecular based methods due to their easiness, rapidness and sensitivity are recognized as the most appropriate means to detect fraudulent practices. This review lists out some of the molecular screening techniques for identifying adulterants in meat products.

Keywords: DNA, PCR, ELISA, SDS PAGE, Sequencing, DNA Barcoding

Introduction

Adulteration may be intentional or unintentional. The intentional adulteration is a willful act intended to increase the margin of profit while the incidental contamination is usually due to ignorance, negligence or lack of proper facilities (Sahoo 2014). Food manufacturers as well as food processing factories may purposely add different types of meats to a particular meat product so as to add bulk or make up the volume of the product.

For example, pork is a potential source for adulteration of higher value meat such as beef and veal (Ong *et al.*, 2007). Single and multispecies adulterations have been reported in commercial meat products (Hsieh *et al.*, 1997).Compared to fresh meats, the chances of adulteration are more in processed and comminuted meat products like sausages because the comminution, processing and using other ingredients can mask the adulteration effects thus putting the consumers

Library services In and As a mobile phone application: A perspective Study

Mahitha Dileep[1]**and Sreeja Ramachandran**[2]
[1]MACFAST Library and Information Centre (MLIC)
Mar Athanasios College for Adavanced Studies Tiruvalla
(MACFAST),Kerala-689101
[2]Central Library, Believers Church Medical College Hospital ,
Tiruvalla-689103

ABSTRACT

In the current communication world, mobile and its applications are the most promising trends. Mobile phone applications are the exact replacements of web based applications. Based on the statistics migration of web based application of college library to mobile application is desired. In most of the college websites applications like latest news, attendance, login and registrations, e-books, forums, results, chat application, web mail, etc. are used. Based on this we would do the same in a mobile application. The reason behind the work is that the mobile applications do not need any third party browsers, or any domain registration. So in order to take the advantages of all this limitations we are planning to develop the mobile applications. Now the important modules that are to be implement on mobile application is OPAC (Online Public Access Catalogue) for a library account. Using OPAC mechanism in mobile one can just access the library account of his/her from anywhere using his mobile device, So that they can check the availability of books in the library instead of going to library. They can even check the number of books that are taken in there account and its submission date, fine to be paid in case.

Keywords: OPAC, Mobile app, Database, Bibliography

Introduction

Communication is a process of transmitting information. During the past five decades different media have been used for communication. These media could make a huge changes in the communication scenario. In the case of library, traditional libraries store their information in printed formats like papers, palm lets skin sheets etc. Information is physically assembled in one place called stack rooms; users must go to the library to select their books and find out whether their relevant topic is in that book or not. But the emergence of information communication technology

Integrating Green Practices in Human Resource Management

Ligo Koshy
Department of Management Studies
Mar Athanasios College for Advanced Studies Thiruvalla
(MACFAST) Kerala, India-689101
Email: ligo@macfast.org

ABSTRACT

Green human resource management is an emerging topic in the filed of sustainable development. The demand for strategic green human resource management is increasing; combining environmental management with human resource management. The organization's human resources function is so important in achieving sustainable development. This approach involves incorporating various green practices in the existing human resource activities for transforming them so that it cause less harm to the environment and eventually contribute to the sustainable development initiatives of the organisation. The green human resource management is a part of broader corporate social responsibility of the organisation. Green HR management will contribute to the organization's concern towards environmental issues by leveraging management philosophy, HR policies and practices, training people and implementing legal aspects related to environmental protection. Through this paper the researcher had made an attempt to identify the integration of green practices followed in human resource activities such as green job design and Job Analysis, green Human Resource planning, green Recruitment and Selection, green Induction, Green Performance management, green training and Development, Green Compensation and rewards, Green Health and Safety Management, Green Discipline Management and green Employee relations for sustainable development.

Keywords: green HR, Sustainable Development, green job design and Job Analysis, green Human Resource planning, green Recruitment and Selection, green Induction, Green Performance management, green training and Development, Green Compensation and rewards, Green Health and Safety Management, Green Discipline Management, green Employee relations

Introduction

"How can we be so arrogant? The planet is, was, and always will be stronger than us. We can't destroy it; if we overstep the mark, the planet will simply erase us from its surface and carry on existing." Paulo Coelho.

Green is the color of nature and the most beautiful color in the world. Coexistence with nature and the environment can bring us happiness and prosperity - whether it is our

A review on avenanthramide, a therapeutic polyphenol from Oats

Gokul Shaji, Abhijith R.S. and Ann Mary C. Simon*
School of Biosciences
Mar Athanasios College for Advanced Studies Tiruvalla
(MACFAST), Kerala, India 689101
*E-mail: annmaryc@macfast.org

ABSTRACT

Oat (*Avenasativa*) is a cereal known since antiquity as a useful grain with abundant nutritional and health benefits. It contains distinct molecular components with high antioxidant activity, such as tocopherols, tocotrienols, and flavonoids. In addition, it is a unique source of avenanthramides, phenolic amides containing anthranilic acid and hydroxycinnamic acid moieties, and endowed with major beneficial health properties because of their antioxidant, anti-inflammatory, and antiproliferative effects. This review discuss on the therapeutical activities of avenanthramides, how they act on body and their role in many diseases

Keywords: Avenanthramides, NF-Kb, Tranilast

Introduction

The oats (Avenasativa) is a pseudo cereal, which is nutrient rich food which can reduce the risk of cholesterol. Oats are generally considered as healthy food as it contain many essential nutrients, fibre rich, several B vitamins and numerous minerals. Oat bran is the outer layer of the oats the daily consumption of this has proven the decrease of low density lipoprotein. Beta glucan is the one type of soluble fibre which has been proven to lower cholesterol. Oats contain a globulin or legume protein avenalin (80%) as storage protein. Oat protein is nearly equivalent by quality when it is compared by soy protein.Oats contain other important bioactive compounds, such as phenolic compounds, which exert protective effects against the development of various pathologies, including cardiovascular diseases (CVDs), diabetes, inflammatory bowel disease (IBD), cancer, obesity, and celiac disease, acting synergistically

Exploring seaweed and melanin based cosmetics as a therapeutic agent

Sreechithra T. V.
Department of Food Science and Technology
Pondicherry University, Kalapet, Puducherry 605014
E-Mail: sreechithra121@gmail.com

ABSTRACT

As cosmetic industry is expanding its market day by day incorporation of natural bioactive instead of chemical supplements into the products has gained more consumer satisfaction. Seaweed *Gelidium spinosum* collected from Vizhinjam coast,Trivandrum was processed for extraction of antioxidant compounds. The extracted antioxidant was characterized for its flavonoid, carotenoid and polyphenol content.Bioactive compound was further characterized by FT-IR and NMR spectroscopy. Cream was formulated using cream base of oil in water emulsion and bioactive compound was incorporatedinto the emulsified base. Formulated cream showed antimicrobial activity against *S. pyogens, S. aureus, P. aeruginosa, E. coli* and *S. typhi*.

Keywords: Seaweed extract, *G. spinosum*, Cream, Antioxidant, Antimicrobial activity.

Introduction

The growth in global economies, changing lifestyles, rising demands of skin and sun care products; encourages the growth of the market for cosmetics. A shift of preference towards natural and organic beauty products fosters the growth of the cosmetics market. Rising demand for natural, herbal and organic therapeutic products creates potential opportunities for manufacturers to innovate and develop new products in accordance to consumer preferences.

According to the definition of the Federal Food, Drug & Cosmetic Act of the US FDA and article L5131-1 of the French Public Health Code, a cosmetic product is any substance or preparation that is to be rubbed, poured, sprinkled, or sprayed on, introduced into or applied to external parts of the body, in particular the epidermis, hair and capillary

The economic impacts of heritage conservation

V. P. Vijayamohan
Department of Management studies.
Mar Athanasios College for Advanced studies Tiruvalla
(MACFAST), Kerala, India 689101
E-mail: vijayamohan@macfast.org

ABSTRACT

Heritage is considered now as an important lever for economic development. Cultural and natural heritage is not only an excellent source of identity and inspiration, but also a key driving force for development. It is considered as an instrument for satisfying the demand for leisure activities, the opportunity for some deprived areas to create new jobs, a source of new references for economic innovations, and a way of positively enforcing the identity of the local authorities. In other words, investment in heritage can generate return in a form of social benefits and economic growth. In this new view the major problems to solve will be the ones of identifying, assessing, producing and delivering these new services.

Key words: Heritage, economic innovations, social benefits, and economic growth

Introduction

Internationally accepted definition of heritage was distinct by UNESCO that **"Heritage is our legacy from the past, what we live with today, and what we pass on to the future generations"** (UNESCO 2008a, p.5).Cultural and natural heritage is not only an exceptional source of identity and inspiration, but also a key driving force for sustainable development. Today, heritage represents the whole environment that is influenced by its interaction with humanity and is therefore qualified to be recognized as a heritage Cities that lack memory, away from their past, and do not preserve their heritage and identity cannot build their own future, which make them vulnerable to destruction. Countries with special cultural heritage provide a humanitarian service to the world

Digital marketing: an effective tool during economic crisis

Neethu Ann Georgie*, Reshma T. R. and Amala Elsa Alex
Department of Management Studies
Mar Athanasios College for Advanced Studies Tiruvalla
(MACFAST), Kerala - 689 101
*E-mail: neethu.ajith@macfast.org

ABSTRACT: Marketing is significant for the immense growth of a company. During economic crisis, allocation of marketing resources is a complex decision. An effective marketing strategy is essential during an economic recession and the emergence of digital marketing provides a wide horizon for creating new opportunities and challenges for the companies. By using digital marketing channels and methods, the marketers can analyse the effectiveness of their campaigns in real time basis.. For the business to thrive it is important to choose the best digital marketing channel and this depends on the type of business and the kind of customers.As technology is improving day by day, digitization has been a part of the economic growth and as more customers are using the internet nowadays, the scope of digital marketing is also widening.

This paper covers the concept of digital marketing. Extends by analysing the advantages and disadvantages of the same and also tries to analyse whether this digital marketing is effective during economic crisis.

Keywords: Digital marketing, Economic crisis, Content marketing, Marketing strategies, Social network.

Introduction

The world is running towards the online life style. Even businesses have started following the same trend in order to be more successful and there comes the digital marketing. The economic and financial crisis affected all the economic sectors, spreading all over the world. The digital marketing strategy during recession can offer the ability to test various tactics and thus evaluation is possible which identifies the best response thereby the marketing strategies can be adjusted accordingly.Currently, the digital economy contributes decisively to an increase in competitiveness, especially as a digital transformation involves migrating to new technological models where digital marketing is a key part of growth. Internet and Digital Marketing have become important factors in campaigns, which attract and retain Internet users. This study aims to identify the main ways in which users can be gained and retained by using Digital Marketing.

Marketing strategy begins with changing environment. The business environment and marketing strategies have gone through big changes due to digitalization. Every company that has competitors must have a strategy. The purpose of the strategy is to create competitive advantage. A marketing strategy is a plan for how the

The use of probiotics in aquaculture: a review

Jency Rajan, Naina Anna and Ann Mary C Simon*
School of Biosciences
Mar Athanasios College for Advanced studies Tiruvalla
(MACFAST), Kerala, India 689101
*E-mail: annmaryc@macfast.org

ABSTRACT

With increasing demand for environment friendly aquaculture, the use of probiotics in aquaculture is now widely accepted. Probiotics, which are micro-organisms or their products with health benefit to the host, have found use in aquaculture as a means of disease control, supplementing or even in some cases replacing the use of antimicrobial compounds. This review provides a summary of the uses and challenges of probiotic application in aquaculture.

Keywords: Probiotics, Aquaculture, Broodstock

Introduction

The probiotics is defined as live microbial feed supplements that improve health of man and terrestrial livestock. They have found its use in aquaculture as a means of disease control, supplementing or even in some cases replacing the use of antimicrobial compounds. The research of probiotics for aquatic animals is increasing with the demand for environment friendly aquaculture. Aquaculture is the farming of aquatic organisms by intervention in the rearing process to enhance production and private ownership of the stock being cultivated. Compared to fishing, this activity allows a selective increase in the production of species used for human consumption, industry or sport fishing. Due to overfishing of wild populations, aquaculture has become an economic activity of great importance around the world. Aquaculture's contribution to world food production, raw materials for industrial and pharmaceutical use, and aquatic organisms for stocking or ornamental trade has increased dramatically in recent decades. Nowadays, aquaculture is a lucrative industry .However, the intensification of aquaculture practices requires cultivation at high densities, which has caused significant damage to the environment

The significance of neural network approach in this era

Terry Jacob Mathew
Department of Computer Applications
Mar Athanasios College for Advanced Studies
(MACFAST), Kerala - 689 101
Email: terry@macfast.org

Abstract: Neural networks are a category of successful programming paradigms capable of dealing with prediction and classification. A neural network learns from observational data and automatically finds the expected solution for the programmer. With the advent of deep learning networks in 2006, the picture changed dramatically owing to their better outcomes. But the significance of neural networks is still valid due to their ability to produce decent outcomes in a data starved environments. This article showcases the working principle of neural networks, their importance and some applications for insect classification.

Keywords: Neural networks, Deep learning, Acoustic classification, Insect classification, Covid-19

Introduction

In the traditional way of dealing with computational problems, the role of the programmers is quite important as they have to mastermind the workflow of the algorithm. By contrast, in a neural network scenario, programmers are free to relax as the process of computation is triggered. A neural network learns from observational data and automatically finds the expected solution for the programmer. The picture changed dramatically in 2006 due to the introduction of deep learning models (Goodfellow, 2016), which promised better outcomes. Today many new models such as deep neural networks achieve outstanding performance for a range of problems in image processing, computer vision, speech recognition etc. The dependence on these algorithms by technological giants such as Google and Facebook stands testimony to their significance.

This paper is structured as follows. Section 2 addresses the concept of neural network, explaining its benefits in this era. Section 3 details an example which is worked out so that the concept can be well understood. Section 4 describes the application of neural networks in insect classification, in particular emphasising its need in the wake of the novel corona virus infection. Section 5 highlights the value of the method and gives an elaborate discussion related to classifying bats. Finally, we suggest further work and conclude in Section 6.

Neural Network

To understand the underlying concepts, there is a need to understand the basic concept of artificial neuron called a perceptron. Perceptrons (Rosenblatt,1961) were introduced in the 1950s and 1960s by the scientist Frank Rosenblatt, motivated by the former work done by Warren McCulloch and Walter Pitts. To start off, we will see the working of a perceptron. A perceptron is an entity that takes several binary inputs, $x1, x2, \ldots xn$, and produces a single binary output:

Software engineering concepts - A study and application in life

Ashok Raj Radhakrishnan
Department of Computer Applications
Mar Athanasios College for Advanced Studies Tiruvalla
(MACFAST), Kerala - 689 101
E-mail: ashok@macfast.org

Abstract: The design methods and software development lifecycle methodologies apply to areas outside the software environment. As a Technologies & IT head and Professor, I learn, implement and teach many software principles in day-to-day life both at the office and home. After knowing the power of Agile outside the software development environment, I often self-retrospect about how well I can make use of the computer science knowledge I am acquiring in my life. Hence for my analysis, I attempt to study different SDLC (Software Development Life-Cycle) processes that might be usable in life. I assume if the model such as Agile is a useful tool, then the others can also have room for application in my life. The software types I will study is open source. My work verifies open and closed software standards. To make my work brief and focused, I will focus primarily on Linux and Agile for Open Source (OS) and Closed Software (CS) models, respectively. Both open and closed software standards extensively impact on the software revolution. Especially closed software standards have famous beyond the software engineering environment. Before the research, I thought first to describe the commonalities that they have. During my study, I was able to identify the positive attributes of methods that define the open-source development model, which can help me to do productive things in my life. Software engineering standards, processes, guidelines, methods and tools can be used as a catalyst to improve our daily lives.

Keywords: Open Source (OS), Closed Software (CS)

Introduction

The description of the development process of the Linux kernel by Robert Love contradicts my findings. Love describes the process of open source development as "chaos." I would suggest that the process of open source development - highly well organized and strictly controlled.

One of my study's aims is to explain the underlying paradigms, methodologies, and practices describing OS and CS processes to the reader. The study would compare the critical activities of CS and OS to assess the reader's similarities and differences. I will concentrate on results on which methodologies lead to better performance of software. My findings shall link the reader uses development models and their commercial applications in their life. I will quote personal experience and other relevant examples.

Methodology

A. Target readers and Plan

The target audience of this paper is the one who is interested and willing to learn and understanding on how software development paradigms work and want to know how those processes are incorporated in other own lives. The goal is to explore and equate few models in software development, and illustrate through examples and case studies that these can bring you a better parent, wife, manager, engineer, physician, sportsperson or the role that you dream of being, by applying the processes used in those models.

Image forgery detection: A review

Rani Susan Oommen
Department of Computer Applications
Mar Athanasios College for Advanced Studies Tiruvalla
(MACFAST), Kerala - 689 101
E-mail: rani.susan@macfast.org

Abstract: In recent years there has been a growing attention in the different methods for processing and detecting forgery in digital images. The advancement of powerful digital image processing tools makes it relatively easy to tamper digital images. Therefore claiming the authenticity of a digital image has become a challenging task. Copy-move forgery is a specific type of image tampering where a part of the image is copied and pasted on another part generally to hide unwanted portions of the image. The goal in detection of copy-move forgeries is to detect image areas that are same or extremely similar or detect those regions which occur more than once in an image. In this paper, different forgeries in digital images and the different forgery detection methods are reviewed.

Keywords: Digital Forensics, Image Tampering, Copy move forgery.

Introduction

Digital images play a vital role in areas like forensic investigations, journalism, surveillance systems, insurance etc. Rapid advancement in imaging technology and availability of powerful digital image processing programs such as Photoshop, GIMP etc, makes it relatively easy to manipulate digital images. Therefore establishing the authenticity of an image has become a challenging task. Anyone with the basic knowledge of digital image and tools can modify an image easily (Popescu, 2004).

Image tampering can be defined as the intentional manipulation of images for malicious purposes. Image forgery can be traced back to as early as 1840s, "Self Portrait Of a Drowned Man", created by Hippolyte Bayrad is the very first fake image, in which he was shown committing suicide, shown in Fig1: (Redi, 2011).

Digital Image Forensics is a field that analyses images of a particular scenario to establish the credibility and authenticity through a variety of means. Digital Image Forgery is generally categorized into- active approach and passive approach, Fig2. The active approach such as Digital watermarking and digital signature, watermarks must be embedded during image acquisition. In this type of detection, access to original image is required to insert a watermark which is practically infeasible (Fridich, 1999). In passive approach, no prior information is required. The common image tampering techniques include:

- Copy- Move Forgery- where some region is copied and then pasted to another location in the same image.

- Image splicing- involves composite of two or more images which are combined to create a fake image.

- Image retouching- is the slight change (blurring, illumination, color change) in the image for various aesthetic and commercial purposes.

A study on mathematical tools for decision making problems

Sreelekshmi C Warrier
Department of Computer Applications
Mar Athanasios College for Advanced Studies Tiruvalla
(MACFAST), Kerala - 689 101
Email: sreelekshmic@macfast.org

Abstract. *The most appropriate theory for dealing with uncertainty in the theory of fuzzy set developed by Zadeh in the year 1965. Later in 1999, Molodstov introduced soft set theory for modelling vagueness and uncertainty in decision making problems. In this paper, the study two mathematical tools namely, fuzzy set and soft set for decision making problems.*

Keywords: Fuzzy set, Soft set, Decision Making.

Introduction

Decision makers in any discipline are always challenged to make the best decisions. In order to successfully run and ow through the normal operations of any organization and to improve the existing processes, decision makers usually depend on their expertise and the large volumes of available information. The golden rule for perfect decision making is that the best decisions can be made with a thorough understanding of the system. Therefore, a prior study of the system under consideration is vital, before any decision process. The traditional decision-making approach is based on continuous improvement and on the experience of the decision maker. However, this approach is inferior in many areas including the amount of time required, the cost and uncertainty in the result.

The designing and working on these systems, especially in a complex scenario, is extremely risky, mainly due to the high number of resources involved, the uncertainty resulting from these activities occurring at dierent moments and due the distinct probability of simultaneously required resources. There are many mathematical tools or theories to deal with uncertainty cases in decision making problems. Some of the prominent mathematical theories are fuzzy set, soft set, fuzzy soft set, and so on (Molodstov, 1999; Sut, 2012; Feng, 2010; Alcantud, 2015; Zadeh, 1965; Maji, 2002).

The theory of fuzzy set provides a host of attractive aggregation connectives for integrating membership values describing uncertain information. In 1965, Zadeh (Molodstov, 1999), proposed and dened the operations of fuzzy set theory in his seminal publication. A commonly used method in handling uncertainties and representing incomplete and unreliable data is soft computing, which gained further importance as a direct result of the establishment of soft set theory by Molodtsov (Kovkov, 2007). The denition by Molodtsov applies for a single universe and the relationship between associated parameters. These extensions all contribute itself to Zadeh's concept of fuzzy sets in modelling uncertainty in decision making problems.

Soft set is a mathematical tool free from the problems arising due to the inadequacy of parameters and was introduced by Molodstov in

Virus vs Cancer: A brief insight into Oncolytic Virus Therapy

Veena C. Nair and Sini Kurien*
School of Biosciences
Mar Athanasios College for Advanced Studies Tiruvalla
(MACFAST), Kerala-689101
*Email: sini@macfast.org

Abstract: *The idea of using viruses to treat cancer began about 100 years ago, but a significant jump occurred only in recent decades with the growing discovery and knowledge of the working mechanisms adopted by these viruses. Recent advances in this field has proved that Oncolytic viruses, which can replicate within cancer cells and induce tumor lysis and immune responses can be combined with the normal Immunotherapy regimes to improve the immune response against cancer. Although, successful clinical trials of these oncolytic viruses has opened new paths for cancer therapy, the consequences of their immune activity remains unclear to this day.*

Keywords: *Cancer, Oncolytic virus, Tumor lysis, Immunotherapy*

Introduction

A virus is a small collection of genetic code, which could be either DNA or RNA and is surrounded by a protein coat or an outer envelope of lipids. Since they cannot replicate alone, they infect cells and use components and machinery of the host cell to make copies of themselves. For several decades, researchers all around the world have looked at viruses as potential agents of tumor destruction and various research has been carried out in this field in search of a tool to directly kill cancer cells.

Exploiting viruses for therapeutic gain was first suggested at the beginning of the twentieth century (Kelly and Russell, 2007) and in the upcoming years, it developed into the field of Virotherapy (Russell, 2012) which is a treatment procedure that uses various biotechnological techniques to reprogram viruses into therapeutic agents. It includes branches such as Anti-cancer oncolytic viruses, viral vectors for gene therapy, and viral immunotherapy. Notable progress in the field of virotherapy started with the increasing observation throughout the years that, occasionally some cancer patients who contracted an infectious disease went into brief periods of clinical remission (Dock, 1904).

After years of research, scientists were able to identify some viruses that tend to infect and kill tumor cells. Soon they also modified these viruses in the laboratory to confer them the ability to reproduce efficiently in cancer cells without harming the healthy cells of the host. These viruses are now known as oncolytic viruses.In October 2015, Imlygic (talimogene laherparevec) turned in to the the first oncolytic virus to receive the U.S Food and Drug Administration (FDA) approval. It is also known as T-VEC and is used for the treatment of patients with melanoma lesions in the skin and lymph nodes (Ledford, 2015). The treatment includes injecting the virus directly into melanoma lesions, which resulted in increasing

In vitro propagation of an important medicinal plant *Justicia gendarussa* Burm. f.

Athira C. K. and Biju Dharmapalan*
School of Biosciences
Mar Athanasios College for Advanced Studies Tiruvalla
(MACFAST), Kerala - 689 101
*E-mail: biju@macfast.org

Abstract : *Justicia gendarussa* Burm.F. Commonly known as willow-leaved Justicia is a valuable medicinal plant and various parts of this plant are used for the treatment of various diseases like arthritis, rheumatism etc. A complete protocol for in vitro propagation of *J.jenderussa* using axillary bud and nodal region as replant was developed. The axillary shoots effectively induced in full strength and half strength Murashige and Skoog medium supplemented with BAP and NAA at different concentrations. The medium supplemented with 1.5mg/L BAP and 1mg/L NAA was found to be the most suitable combination for root and shoot proliferation. The in vitro regenerated plantlets are hardened using a mixture of sterile sand: soil : manure (1:1:1) and successfully established in greenhouse.

Keywords: *Justicia gendarussa, In vitro* propagation, axillary bud, proliferation, hardening.

Introduction

Plants play a pivotal role in the field of medicine to maintain world health. Medicinal plants have been discovered and used in traditional medicine practices since long before the arrival of modern medicine. *Justicia gendarussa* Brum. F. is one of the important plants in traditional medicinal plants, belonging to the family Acanthaceae. It is rare, much-branched, smooth, shade-loving, erect shrub with long leaf having acute tips; small flowers on long terminal pinkish spikes with purple spots. The quick growing evergreen plant mostly found in moist areas. It is deemed to be native of china and distributed widely across India, Sri Lanka and Malaysia. It is a prominent plant because of its medicinal properties. The whole plant used to treat different aliments. They are useful for rheumatism, inflammations, bronchitis, dyspepsia, eye diseases, fever, hemiplegia, headache, earache, muscle pain, vaginal discharges, otalgia, digestive trouble and respiratory disorder (Periyanayagam *et al.*, 2019). Other some benefits of leaves and roots include for lumbago, arthritis, facial paralysis, cough, jaundice, hemicranias and liver disorder (Ahmad *et al.*, 2003). The antilarvicidal and adulticidal properties of this plant against the malarial vector, Anopheles stephensi have been reported (Senthilkumar *et al.*, 2009). The plant is rich in alkaloids, triterpenoids, tannins, justicin, steroids and flavanoides (Prajogo *et al.*, 2009) serving as secondary metabolites that can be utilized various medicinal applications.

Due to the wide range of medicinal applications, increases the demand of *J.gendarussa* also unawareness of this plants leads to extinction. In vitro propagation carries a crucial role for the conservation of a rare medicinal plant *J. gendarussa*. Plant tissue culture increases the crop productivity with short time period.

The nutritive values, therapeutic properties and bioactive compounds of mushrooms

Beena Cherian* and Shanto V. Thomas
School of Biosciences
Mar Athanasios College for
Advanced studies (MACFAST)
Thiruvalla, Kerala, India 689101
*E-mail: beena.cherian@macfast.org

Abstract: Mushroom cultivation can represent a valuable small scale enterprise option because of the widened knowledge, more dimensions of its utility, provoking extensive cultivation of mushroom through out the world and its popularization in every sphere of life. They are highly medicinal, delicious as well as rich in dietary fibre, protein and having various micronutrients. They are widely used as human food. The present review gives an account of nutritive value, medicinal properties, bioactive compounds of mushrooms so as to help the researchers in their crusade to explore more novel metabolites from this mushroom fungus that can be used as new potential drug.

Keywords: Mushroom, nutritive value, therapeutic, bioactive compounds.

Introduction

Mushrooms are widely accepted as salubrious food because of its nutritional quality and also preventing numerous human health complications and medicinal component. To meet the nutritional quality, it is important to tackle the problems by addressing the demand of qualityfood, health and environmental feasibility (Singh *et al.*, 2017). Mushroom cultivation is an economical viable biotechnology process where waste materials, crop residues may be converted into valuable food (Wood, 1985). It is an important horticultural cash crop. Production and consumption of mushroom has tremendously increased due to their medicinal and nutritional value (Rai and Arumuganathan, 2003). Mushrooms constitute at least 12,000 species world wide and 2000 of these species are reported as edible. About 35 edible mushroom species are commercially cultivated whereas nearly 200 wild species are being used for medicinal purposes (Beulah *et al.*, 2013). The usage of mushrooms is increasing day by day throughout the world. It plays a significant role in human health andnutrition (Mshandete, 2011). According to Thakur (2014), mushroom cultivation technology is friendly to the environment. It can directly improve livelihood through economic, nutritional and medicinal contributions.

Nutritive values

Mushrooms are a cheap source of world's untapped resources of nutritional sound food. Edible mushrooms are important sources of food. They are consumed for their nutritive value, intense flavour and taste. According to Nita 2009, the mushrooms are a cheap source of good quality proteins, vitamins, fibre, antioxidant and water. The mushrooms being a complete food, rich in carbohydrates, proteins, vitamins, fats, dietary fibres, and minerals (Alam and Raza, 2001). Pavel, 2009 reported that on account of the digestibility property, mushrooms are treated as a substitute of muscle protein.

Role of fish in human nutrition with special emphasis to seasonal variation- A critical review

Treesa Varghese*, Jenny Jacob
School of Biosciences,
Mar Athanasios College for
Advanced studies (MACFAST)
Thiruvalla, Kerala, India 689101
*E-mail: treesa@macfast.org

Abstract: Fish is one in every of the foremost necessary foods within the human diet attributable to its high nutritional value. They act as the well-known source of most of the essential unsaturated fatty acids (PUFAs) particularly polyunsaturated fatty acid and omega-6 fatty acid. These fatty acids have very crucial preventive effects on coronary heart diseases, response disorders, arrhythmias, lowering plasma lipoid levels, and force per unit area. Many of the minerals present in fish that is needed by our body's growth, and maintenance. The minerals content in fish iron (Fe), metal (Ca), Zinc (Zn), Phosphorus (P), atomic number 34 (Se), chemical element (F), Iodine (I). These minerals have great bioavailability. The present review deals with an up-to-date information regarding the importance of fish in human nutrition and the impact of seasonal variation on the nutritional profile of fish muscle tissue reviewed.

Key words: Fish, nutritional profile, seasonal variation, human nutrition

Introduction

Fishing is one of the most important industries in the world economy. One of the most importantcharacteristics of buyerconsummation is the nutritional quality of a food item. As they contain all the ten essential amino acids, animal proteins are known as the complete protein(Hoffman and Falvo, 2004). Therefore, it has been proposed that at least one-third of the total protein requirement in the daily diet must come from animal sources (Ferdose *et al.*, 2011). Native endemic fish species are considered valuable micronutrients and micronutrient resources and play an important role in providing essential nutrients to the human body. The muscle of fish consists of protein, fat and water as the main components of food, and the trace components are carbohydrates, vitamins and minerals. Good food and fish recognition are becoming more and more relevant due to their unique nutritional value. A proper understanding of the biochemical composition of fish is a key prerequisite for dieticians in this context. Moreover, for better processing and preservation, its assessment is significant.

Proximate composition

Proximate analysis of the food sample determines the total protein, fat, ash, and moisture expressed as a percentage of the product. The main components of the edible part of fish are water, protein, lipids and ash (minerals), which make up about 96-98% of all components of fish tissue (Love, 1988; Nowsad, 2007). In addition, carbohydrates, vitamins, nucleotides, and non-protein nitrogen components are present as small components. This biochemical composition depends on the age, habitat, size, age and habitat, migration, gender differences, hunger, maturity, season, species and even individuals (Sankar and Ramachandran 2001, Gopakumar, 2002, Pawar and Sonawane, 2013) reported that the proximate composition of fish depends on various factors

Mycoendophytes: A new vision to the biological synthesis of silver nanoparticles

Smitha Vijayan[*1,2], Jisha M. S.[1]
1. Mahatma Gandhi University
Priyadarsini Hills, Kottayam
Kerala, India 686 560
2. School of Biosciences,
Mar Athanasios College for
Advanced studies (MACFAST)
Thiruvalla, Kerala, India 689101
*Email: smitha@macfast.org

Abstract: Nanoparticles are microscopic materials that varies from 1 to 100nm in size. They possess distinctive physical and chemical properties due to large surface to volume ratio and nanoscale size. Optical properties of nanoparticles depend on the size which transmits different colours because of the absorption in visible region. Reactivity, toughness, and other characters depends on their unique size, shape and structure and hence makes nanoparticles suitable for various commercial and domestic applications like catalysis, bio sensing, imaging, medical and environmental applications.

Keywords: Nanoparticles, biotechnology, bio sensing, Sputtering, Laser Ablation, Co precipitation, Hydrothermal, Green synthesis.

Introduction

"There is plenty of room at the bottom" is the title of the talk delivered by Richard Feynman in 1959 while introducing the idea of nanotechnology to the world. He attributed the concept and early research in the area (Bowman and Hodge, 2007). Nanotechnology is committed with the synthesis and effective use of nanomaterial, which is in a size range of 1 to 100 nm (Hasan and Hasan, 2015). Nanotechnology obtained massive recognition in the current century. The distinctive properties of nanoparticles make them unique compared to their respective bulk materials (Iravani *et al.*, 2016). Nanotechnology has an insurgent impact on day to day life and it is driven by the aspiration to formulate materials with new and effective significance in almost all industries (Khan, 2016). Nanoparticles can be of different configuration, dimension and nature; their properties directly depend on the size and shape. If there is change size or shape it will ultimately result in the loss of their unique property (Ealia, 2017)

From the ancient time onwards silver and silver-based compounds are used as an antimicrobial agent (Siddiqi *et al.*, 2018). Nowadays research is displaying massive attention towards nanoparticles of various metals. Among all the metals the massive importance is given to silver nanoparticles because from the old civilization, silver was known for antimicrobial properties (Natsuki *et al.*, 2015). Physical and chemical methods of silver nanomaterial synthesis are an extensively studied area but the biological synthesis is an underexplored area. Physical and chemical synthesis is very easy but reported with many drawbacks such as the use of poisonous and expensive chemicals as reducing and stabilizing agents. To reduce the risk of hazardous chemicals, which may cause many health and environmental risk, the industry is in search for a new eco-friendly, safe method for the development of silver nanoparticles (Gandhi *et al.*, 2016). Use of microorganisms for the synthesis of silver

The financial fraud detection system using the fraud triangle theory (FTT)

Brejit Lilly Abraham*, Jeena Sara Viju
Department of Computer Applications,
Mar Athanasios College for
Advanced studies (MACFAST)
Thiruvalla, Kerala, India 689101
*Email: brejit@macfast.org

Abstract: Monetary extortion is generally spoken to by the utilization of illicit practices where they can intercede from ranking directors until finance representatives, turning into a wrong doing deserving of law. There are numerous systems created to dissect, distinguish and forestall this conduct, being the most significant the misrepresentation triangle hypothesis related with the exemplary monetary review model. So as to play out this examination, a study of the related works in the current writing was completed, to build up our own structure. Right now, paper presents Fraud Find, an applied structure that permits to distinguish and diagram a gathering of individuals inside a financial association who submit extortion, upheld by the misrepresentation triangle hypothesis. Misrepresentation Find works in the methodology of nonstop review that will be accountable for gathering data of specialists introduced in client's hardware. It depends on semantic strategies applied through the assortment of expressions composed by the clients under investigation for later being moved to a vault for later examination. This proposal encourages contributing with the field of cyber security, in the reduction of cases of financial fraud.

Keywords: Fraud Detection, cyber security, Data mining

Introduction

Data security means protecting digital data such as those in a database, from destructive forces and from the unwanted actions of unauthorized users such as a cyber-attack or a data breach. Data security is used while amount transaction. (Begum, et.al, 2009) Data mining is the process of discovering patterns in large data sets involving methods at the intersection of machine learning, statistics, and database systems.

Bank extortion is the utilization of possibly illicit intends to get cash from investors by deceitfully acting like a bank or other money related organization. It influences open and private organization. It is considered by the legislature to be one of the most genuine offenses than bank burglary. Misrepresentation against an organization can be submitted either inside by workers, directors, officials, or proprietors of the organization, or remotely by clients, merchants, and different gatherings. In numerous cases, an organization's representatives are the greatest extortion dangers to the business main concern.

Employees may have a few key inspirations that lead to extortion. The dominating helpers are monetary weights, addictions, way of life requests or other individual issues. They lead workers to look for extra assets to straightforwardness such weights. To the impediment of the business, representatives may accept open doors to misuse shortcomings in their boss' frameworks and controls for their very own benefit. Fraud

An overview of a new neural deep learning network- capsule network

Vidhya V Kumar*, Phijo J Cherickal,
Ranjini Mariam Philipose, Tiji Thomas
Department of Computer Applications,
Mar Athanasios College for Advanced Studies Tiruvalla
(MACFAST), Kerala, India-689 101
*E-mail: vidhya.sujith@macfast.org

Abstract: In today's scenario the different neural networks need efficient solutions in the field of image processing. Deep learning uses many neural net works such as Recurrent Neural networks (RNN), Convolution Neural Networks (CNN). RNN is a kind of artificial neural networks (ANN) in which connections are in the form of directed graph and it shows a dynamic behaviour. While using RNN in deep learning we are not able to process long sequences, and training for this model is difficult. CNN is used in deep learning to analyze visual images which uses a linear mathematical operation called convolution. The CNN needs lots of training data for analyzing visual images and also sometimes we are not able to capture some poses and contortion of objects. The above problems of neural networks leads to the introduction of new neural networks which overcomes the limitations of RNN and CNN called capsule net works.

Keywords: Capsule network, Convolution network, Capsnet, DigitCaps, ConvNets

Introduction

Today many image classification techniques are available in neural networks like Recurrent Neural Net works (RNN), Convolutional Neural Net works etc. Convolutional Neural Net works (CNN) is the back bone of the image classification and object detection developments seen over the past years. But these networks preserve only the shape of the object results in its inefficiency. Gesture based applications are quite unsuccessful in Yoga, and related art forms etc. and they require the identification of image location for better accuracy. Hence, we use Capsule Networks, which preserves equivariance in an image by analyzing the hierarchy and order of objects within the image. Since CNN looses the location information of an object due to its pooling layers that extract only important features, this process leads to wrong classification of the images. However, the capsule networks have proven better accuracy.

Literature Review

Convolution Neural Network

Convolution neural network is a type of deep learning network used for the analysis of visual images. They are made up of neurons that have biases and weights. ConvNets are unable to identify the position of one object relative to another. For example, Conv Net predicts all the key features of a face to a bunch of randomly assembled face parts. Convolution Neural Networks had some basic problems like, it cannot retrieve the logical connection between the sub regions in the image or it fails to predict the geometrical transformations of some images.

Transformation from CNN to Capsule Network

Hinton and his colleagues (Sabour et al., 2017) proposed Capsule Networks to overcome the limitations by adding new structures called