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Preparation and Characterization of Orlistat Bionanocomposites Using Natural Carriers	Santosh Payghan, Vaishali Payghan, Lalita Dahiwade.,	Pharmaceutics	Turkish Journal of Pharmaceutical Sciences	2022	2148-6247	**https://www.turkjps.org/**	https://mjl.clarivate.com/search-results	**Scopus and Web of Sciences**
A Review on The Relationship of Mast Cells and Macrophages in Breast Cancer	Lalita K. Dahiwade	Pharmaceutical Chemistry	International Journal of Creative Research Thoughts	2021	2320-2882	**https://ijcrt.org/**	https://ijcrt.org/ugc%20approval.jpg	**UGC**

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Screening of in-vitro anthelmintic activity of silver nanoparticles of eucalyptus globulus against pheretima posthuma	P. S. Sankpal, Bandal O.B,	Pharmaceutical Chemistry	Global Journal For Research Analysis (GJRA)	2020	2277-7105	2277-7105
Review: Liposomes a Camouflaged Carrier: For Controlled Drug Delivery	Kavita A. Nangare	Pharmaceutics	International Journal of Science and Research (IJSR)	2019	Volume 10 Issue 3, 1771-1778	2319-7064
Nanoparticles As a Nano Based Drug Delivery System	O.M. Sangar A.C. Patil Dr.A.S.Payghan	Pharmaceutics	International Journal Of Science & Research	2019	Volume 10 Issue 3, 1120-1124	2319-7064

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FABAD J. Pharm. Sci., 48, 1, 61-74, 2023
Doi: 10.55262/fabadeczacilik.1085351
RESEARCH ARTICLE

Central Composite Design for the Development of Trimetazidine Dihydrochloride-Loaded Fast Dissolving Film

Swapnil S. CHOPADE*, Mangesh A. PAWAR**, Popat S. KUMBHAR***, Arehalli S. MANJAPPA****, John I. DISOUZA*****, Santosh A. PAYGHAN******, Jagruti L. DESAI*******

Central Composite Design for the Development of Trimetazidine Dihydrochloride-Loaded Fast Dissolving Film

SUMMARY

A fast-dissolving dosage form is an approach used to improve therapeutic efficacy and bioavailability by avoiding the first-pass metabolism of the drug carrier. Besides, the approach causes rapid drug absorption from the pre-gastric area which may outcome in the quick inception of action. Trimetazidine dihydrochloride (TDC) is an anti-anginal drug, and there is a prerequisite to provide fast onset of action to treat angina. Therefore, the present work aimed to prepare and evaluate fast-dissolving oral films (FDOFs) of TDC to provide fast onset of action. The FDOF is prepared by using the solvent casting method, and it was optimized by employing a central composite statistical design (CCD). The two independent variables such as HPMC K4M (X1) and PEG 400 (X2) are the film-forming polymers that are evaluated at three levels. The dependent variables such as folding endurance (Y1), disintegration time (Y2), and % drug release (Y3). The formulation was prepared and optimized. The batch F-4 showed the least disintegration time (19 s) and the highest drug release (98.55±7.90%). Moreover, the ex-vivo mucus permeation study disclosed better permeation and satisfying physicochemical properties compared to plain drug solution. It was concluded that the prepared formulation could be a novel dosage form to improve drug delivery and patient compliance.

Key Words: *Anti-anginal, CCD, ex-vivo permeation, fast dissolving oral film, solvent casting method, trimetazidine dihydrochloride.*

Merkezi Kompozit Dizaynı ile Trimetazidin Dihidroklorür Yüklü Hızlı Çözünen Film Geliştirilmesi

ÖZ

Hızlı çözünen dozaj formu, ilk geçiş metabolizmasını elimine ederek ilaç taşıyıcı sistemin terapötik etkinliğini ve biyoyararlanımını geliştirmek amacıyla kullanılan bir yaklaşımdır. Ayrıca, bu yaklaşım etkinin hızlı bir şekilde başlamasıyla sonuçlanabilecek olan mide öncesi bölgeden hızlı ilaç emilimine neden olur. Trimetazidin dihidroklorür (TDC) anti-anjinal bir ilaçtır ve anjina tedavisi için hızlı etki başlangıcı sağlanması bir ön koşuldur. Bu nedenle, mevcut çalışmada hızlı etki başlangıcı sağlamak için TDC'nin hızlı çözünen oral filmlerinin (FDOFs) hazırlanması ve değerlendirilmesi amaçlanmıştır. FDOF, çözeltinin dökülmesi metodu ile hazırlanmıştır ve merkezi kompozit istatistiksel tasarım (CCD) uygulanarak optimize edilmiştir. HPMC (K4M) (X1) ve PEG 400 (X2) gibi iki bağımsız değişken, üç seviyede değerlendirilen film oluşturma polimerleridir. Katlanma sayısı (Y1), dağılma süresi (Y2) ve % ilaç salımı (Y3) bağımlı değişkenlerdir. Formülasyon hazırlanmış ve optimize edilmiştir. Seri F-4 en kısa dağılma süresini (19 s) ve en yüksek ilaç salımını (%98.55±7.90) göstermiştir. Ayrıca, ex-vivo mukus permeasyonu çalışması, boş ilaç çözeltisine kıyasla daha iyi permeasyon ve tatmin edici fizikokimyasal özellikler ortaya koymuştur. Hazırlanan formülasyonun ilaç taşınmasını ve hasta uyumunu geliştirmek için özgün bir dozaj formu olabileceği sonucuna varılmıştır.

Anahtar Kelimeler: *Anti-anjinal, CCD, ex-vivo permeasyon, hızlı çözünen oral film, solvan dökme metodu, trimetazidin dihidroklorür.*

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JRP Journal of Research in Pharmacy
Research Article
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In vitro, in silico and *in vivo* screening of non-oncology drugs for repurposing in osteosarcoma

Sujit DESAI[1,2*], Arehalli MANJAPPA[3*], Preeti KHULBE[1*], Prafulla CHOUDHARI[5], Popat KUMBHAR[4]

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ABSTRACT: The first-line chemotherapy is associated with chief shortfalls such as non-specific distribution causing severe dose-dependent toxicities and development of tumor resistance. The current preliminary study aimed to identify the safe and effective non-oncology drugs as an alternative to toxic chemotherapeutics to treat osteosarcoma, and overcome new drug's shortage and development challenges. The different category non-oncology drugs (alone and in combinations) were screened for *in vitro* cytotoxicity behavior *via* MTT dye reduction assay and cell cycle arresting behavior using flow cytometer against human osteosarcoma (Saos-2 and MG-63) cells. The molecular docking of selected therapeutics was executed against cyclin-dependent kinase 1 (CDK1), cell cycle regulator overexpressed in cancer. The identified combination was further tested for *in vivo* toxicities in rats at two different doses. The current study revealed niclosamide (NSD), ketoconazole (KCZ), simvastatin (SVN) combination that causes substantial cytotoxicity (IC_{50} values are in picomoles) at 1:1:3 molar ratio when compared to other molar ratios. This combination has also caused substantial arrest of Saos-2 and MG-63 cells at S and G2/M phase. Additionally, all three drugs demonstrated better interaction with CDK1 indicating anticancer potential *via* inhibition of CDK1. Furthermore, the *in vivo* toxicity study revealed no significant changes in hematological and biochemical parameters, body weights of rats, weights of vital organs, daily food and water intake, and general behavior of rats. The obtained preliminary results revealed the potential application of this combination on non-oncology drugs in the safe and effective treatment of osteosarcoma. However, further in-depth studies are required before clinical application.

KEYWORDS: Drug repurposing; osteosarcoma; cytotoxicity; molecular docking; acute toxicity.

1. INTRODUCTION

Cancer is one of the principal causes of mortality universally [1, 2]. The development of new pharmaceuticals with the goal of reducing mortality is fraught with difficulties [3, 4]; it takes an average of 13 years to translate new drugs into clinical practice; and the expected cost of new drug development will be between $2 and $3 billion USD. The practice of using medications that have been approved for one therapeutic application to treat a different ailment is known as drug repurposing [5, 6]. This approach is being applied more frequently to address the cancer drug shortage [7]. Moreover, this avenue proffers a new opportunity for the treatment of cancer, facilitating rapid clinical translation owing to the well known pharmacokinetic, pharmacodynamic, and toxicity profiles of these medications [8, 9]. Therefore, if new pharmaceuticals fail during research and development, this approach may lead to a less perilous business model with reduced development costs [10, 11]. Drug repurposing further increases the overall yield of drug discovery and rightfully concentrates on target-defined anti-neoplastic drugs with a better awareness of the ensign of cancer and the development of a range of data-driven methodologies. Additionally, it is

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ORIGINAL ARTICLE

Preparation and Characterization of Orlistat Bionanocomposites Using Natural Carriers

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ABSTRACT

Objectives: Bionanocomposites (BNCs) are biopolymers or a natural polymers embedded in a combination of two or more different chemicals using natural carriers or bio. BNCs are widely used in drug formulation and in the development of new drugs for various therapeutic drugs, new dosage forms and in pharmacological medicine.

Materials and Methods: Useful and improved melting was achieved by converting selected Biopharmaceutics Classification System (BCS) class II drug into BNCs using natural carriers such as the gums of *Moringa oleifera* Lam. and *Aegle marmelos* (L.) Correa, respectively. The current work focuses on the enhancement of the novel natural polymers such as *M. oleifera* and *A. marmelos*, used to prepare BNC for BCS class II orlistat using a microwave system designed for the distribution method. The natural polymer helps improve the melting of the dispersion when it converts them into BNC. Definitions of orlistat, natural carriers, and prepared BNCs were developed and studied comparatively. The fourier transform infrared spectroscopy (FTIR), differential scanning calorimetry (DSC) study revealed that there was no communication between drug associations and environmental carriers.

Results: Crowd reduction studies were conducted to investigate the material that enhances the melting of BNC compounds dissolving and *in vitro* disposal of BNCs prepared by DSC, scanning electron microscopy, X-ray diffraction studies, and FTIR. BNCs affect orlistat: *M. oleifera* (OSMO-BNC-1: 3), orlistat: *A. marmelos* (OSAM-BNC- 1: 4) is well developed.

Conclusion: Ornat BNCs developed with *M. oleifera* and *A. marmelos* provide significant improvements in dissolve and highlight their use in reducing fortification. Additionally, land melting limits were applied and determined for the melting of BNCs prepared using the Hansen Solubility parameters in particular, Hoy's, Fedor and Van Krevelen system and it was found that this report there was a significant increase in the melting of batches prepared for BNCs.

Key words: Bionanocomposite, BCS class II, orlistat, *Moringa oliefera*, *Aegle marmelos*, microwave-assisted fusion method, Hansen parameters parameter

INTRODUCTION

The therapeutic efficacy of a drug depends on its availability and ultimately in the formulation of chemicals hydrophilic compounds of the compound and the dissolution of drug molecules. It is a great deal of difficulty in preparing and developing the most effective form of improper water solubility of many drugs. Innocence is a parameter for achieving the desired combination of drugs in the distribution of the system so that the therapeutic response is shown. It is estimated that 40% or more of the drug molecules identified during the experiment of compounds do not dissolve well in water. There is a need for systematic and simple preparation and structural methods to make less-soluble drugs available. Making these drugs unavailable means that they show enough absorption after oral administration or they may be injected with 3-4 injections.[1-5]

The main purpose of this work is to prepare, mark the structural requirements of the hydrophilic environment, to construct and test the bionanocomposite (BNC) of orlistat with its low water content, reducing its drug absorption, which reflects the Biopharmaceutics Classification System (BCS) class-II drug

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A REVIEW ON THE RELATIONSHIP OF MAST CELLS AND MACROPHAGES IN BREAST CANCER

[1]Shlesha S. Patil, [2]Lalita K. Dahiwade, [3]Vaishali S. Payghan, [4]Santosh A. Payghan
[1]Student, [2]Assistant Professor, [3]Assistant Professor, [4]Principal
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Abstract-This article investigated all about breast cancer a different dimensions of breast cancer and its associated factors. It revealed that breast cancer was and continues to be among the most prevalent and growing malignant diseases among Iranian women in the past four decades. Also there are mast cells and their relation between breast cancers is shows. In this article, required information was collected through literature review and keyword (cancer, breast cancer, cell, gene, life quality, women, prevalence, productivity, age, obesity, alcohol, cigarette, menopause, genetic, Cytokine, and mortality) this disease affects all physical, mental, and social aspects of women life. On the other hand, such factors as social and family supports during the illness can reduce its damages.

Index Terms - Cancer, diagnosis, mast cells.

INTRODUCTION:

This article provides a standing report on the worldwide burden of cancer worldwide using the GLOBOCAN 2018 estimates of cancer incidence and mortality produced by the International Agency for Research on Cancer, with attention on geographic variability across 20 world regions. There'll be an estimated 18.1 million new cancer cases (17.0 million excluding non-melanoma skin cancer) and 9.6 million cancer deaths (9.5 million excluding non-melanoma skin cancers) in 2018. In both sexes combined, carcinoma is that the most ordinarily diagnosed cancer (11.6% of the entire cases) and therefore the leading explanation for cancer death (18.4% of the entire cancer deaths), closely followed by female carcinoma (11.6%), prostatic adeno-carcinoma (7.1%), and colorectal cancer (6.1%) for incidence and colorectal ancer (9.2%), stomach cancer (8.2%), and cancer of the liver (8.2%) for mortality. carcinoma is that the most frequent cancer and therefore the leading explanation for cancer death among males, followed by prostate and colorectal cancer (for incidence) and liver and stomach cancer (for mortality). Among females, carcinoma is that the most ordinarily diagnosed cancer and therefore the leading explanation for cancer death, followed by colorectal and carcinoma (for incidence), and the other way around (for mortality); cervical cancer ranks fourth for both incidence and mortality. the foremost frequently diagnosed cancer and therefore the leading explanation for cancer death, however, substantially vary across countries and within each country counting on the degree of economic development and associated social and life style factors. it's noteworthy that high-quality cancer registry data, the idea for planning and implementing evidence-based cancer control programs, aren't available in most low- and middle-income countries. The worldwide Initiative for Cancer Registry Development is a world partnership that supports better estimation, also because the collection and use of local data, to prioritize and evaluate national cancer control efforts.

Against this backdrop, the present article provides a standing report on the cancer burden worldwide in 2018, supported the GLOBOCAN 2018 estimates of cancer incidence and mortality produced by the International Agency for Research on Cancer (IARC).6 As in previous reports for 2002, 7 2008, 8 and 2012, 9 the first focus is on an outline of cancer incidence and mortality at the worldwide level and an assessment of the geographic variability observed across 20 predefined world regions. We describe the magnitude and distribution of the disease overall and for the main cancer types, commenting briefly on the associated risk factors and prospects for prevention of the main cancers observed worldwide. We conclude by stating the restrictions of the exercise and therefore the need for population-based national and subnational cancer surveillance data to enhance the accuracy of the GLOBOCAN estimates and inform on-the-ground initiatives in cancer control.Breast cancer is that the commonest sort of cancer in women and therefore the second commonest cancer overall. Over 2 million new cases of carcinoma appeared in 2018, and its incidence and mortality are rapidly growing worldwide. Carcinoma may be a complex and heterogeneous disease in terms of microscopic features, therapeutic response, spreading to distant sites, and patients' outcomes. A possible explanation might be, in part, that we still lack an [illegible] the biological heterogeneity of carcinoma with reference to molecular changes and cellular composition.

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COMPOSITION OF LIPID BASED NANOEMULSION FOR ORAL DELIVERY OF ORLISTAT

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ABSTRACT: Aim: The present work focused on to formulate, evaluate and optimize lipid based nanoemulsion of orlistat to enhance drug release. **Materials and Methods:** Nanoemulsion was prepared using Olive oil, Tween 80, and Distilled water as components. Lipid based nanoemulsion was evaluated for its pH, Rheology study, zeta potential, conductivity, particle size analysis, transmission electron microscopy (TEM) and stability. Central composite design was utilized for the optimization purpose. Formulation variables such as the concentration of Oil (ml) (X1) and Water (ml) (X2) were investigated for their effect on viscosity (Y1) and drug content (Y2). Optimized formulation evaluated for the various parameters. **Result and Discussion:** The responses Y1 and Y2 for the optimized formulation were found to be 0.167 cps and 99%. Orlistat release from the optimized formulation was faster than other formulations obtained from DOE. Increased in vitro drug release of the drug from lipid based nanoemulsion suggests that the nanoemulsion could serve as potential formulation strategy for Orlistat. **Conclusion:** The lipid based nanoemulsion can be used as a possible alternative to traditional formulations of orlistat to improve its dissolution rate leading to enhanced bioavailability.

Keywords: Orlistat, lipid based nanoemulsion, central composite design.

Introduction

It is assessed that more than 1 billion adults around the world are overweight and at least one third of this population are classified as obese. While genetic predisposition, age, and environmental factors may contribute to a person's tendency to gain weight, it is accepted that the two primary causes of obesity are increased intake of energy-rich foods and reduced physical activity. Overweight and obesity have been important public health problems throughout the world, affecting both developed societies and developing countries. Orlistat, a potent, specific, long-acting and reversible inhibitor of lipases, is a member of a new

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ADVANCES IN THE DIAGNOSIS OF TUBERCULOSIS

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Abstract: This article reviews the published literature on tuberculosis is one among the foremost ancient diseases of ankind, with molecular evidence going back to over 17,000 years. In spite of newer modalities for diagnosis and treatment of TB, unfortunately, people are still suffering, and worldwide it's among the highest 10 killer infectious diseases, second only to HIV. Consistent with World Health Organization (WHO), TB may be a worldwide pandemic. It's a number one explanation for death among HIV-infected people. In India, historically speaking, fight against TB are often broadly classified into three periods: early period, before the discoveries of x-ray and chemotherapy; post-independence period, during which nationwide TB control programs were initiated and implemented; and therefore the current period, during which the continued WHO-assisted TB control program is in situ . Today, India's DOTS (directly observed treatment-short course) program is that the fastest-expanding and therefore the largest program within the world in terms of patients initiated on treatment; and the second largest, in terms of population coverage.

Index Terms - Tuberculosis, diagnosis, Mycolic acid.

INTRODUCTION:

Tuberculosis is that the leading infectious explanation for death worldwide. An estimated 3 million people with active tuberculosis were either not diagnosed or were diagnosed but not notified through national reporting systems in 2019. The so-called missing many people with undiagnosed or untreated active tuberculosis are in danger of death and severe illness, and may transmit tuberculosis to others in their households and communities. Declines in global tuberculosis incidence are slow and, at the speed of current progress, are unlikely to satisfy the WHO End TB Strategy targets to scale back incidence by 90% and tuberculosis deaths by 95% by 2035. Therefore, implementations of effective, evidence-based strategies which will increase diagnosis and treatment of tuberculosis, and potentially reduce tuberculosis transmission, are urgently required. Because tuberculosis care and prevention interventions that rely totally on passive case detection and ealth facility-based screening strategies have insufficiently reduced tuberculosis incidence, many national tuberculosis programs have promoted community-based active case-finding interventions.

Health planners and national tuberculosis programmes should consider the implementation of active case-finding for tuberculosis interventions as a part of neat research protocols in urban populations with a high prevalence of undiagnosed tuberculosis and in other populations, to contribute evidence to outstanding knowledge gaps. It was further reported that around 1.3 million patients succumbed almost every year thanks to Tuberculosis. Treatment of TB is even more difficult and challenging with the emergence of drug-resistant variants of tubercle bacillus. In 2012, about 45,000 cases of MDR-TB were identified and an estimated 170,000 casualties occurred because of TB. The condition of MDR-TB becomes worse when Mycobacterium strain gains resistance to more drugs. Emergence of resistance strains to commonly used anti-TB drugs has caused dilemma to researchers. Among all the infectious diseases, tuberculosis reports the very best death rate worldwide exceeding HIV/AIDS. Mycobacterium genome possessing mutation and other structural changes can evade the drugs commonly wont to inhibit them. The outbreak of resistance made the control measures and drugs of the disease more complicated, especially when the patient is co-infected with HIV virus. 65 countries have initiated tuberculosis prevention in people living with HIV, of who account for nearly 9% of all cases and 1.8 million people with tuberculosis. The general coverage in 66 countries was 49%, which looks promising to realize the target of 6 million people over 2018–22. Yet, the amount of household contacts had a way smaller coverage, for instance, only 27% of all the estimated 1.3 million eligible children younger than 5 years.

COMMON SYMPTOMS OF TB:

Two screening tools, namely symptom elicitation and chest radiography, are generally utilized in community based TB disease prevalence surveys. In such surveys, the utilization of chest radiography as a screening tool is challenging thanks to the common non-availability of mobile X-ray units. The value of X-ray films and therefore their processing and the requirement of two independent readers, also make the utilization of this tool a challenge in such surveys. Symptom elicitation may be a relatively simple and cheap screening tool. It's also rapid, also as cost-effective. A study conducted by the National Institute for Research in Tuberculosis, Chennai has shown that in surveys conducted in India about two thirds of cases are picked up by symptom screening alone, which the entire prevalence are often estimated by applying a

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NATURAL PLANT HERBS USED AS NEUROPROTECTIVE AGENT

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Abstract:-

Neurodegeneration refers to a condition of neuronal death occurring as a result of progressive disease of long-term and is becoming a major health problem in the 21st century. Neurons degenerated are not replaced resulting in a cognitive loss, many neurodegenerative disorders, such as schizophrenia, depression, Alzheimer's disease (AD), dementia, cerebrovascular impairment, seizure disorders, head injury, parkinsonism. The common pathology of neurodegeneration includes deposition of misfolded proteins such as amyloid-β (Aβ) in Alzheimer's disease, α-synuclein in Parkinson's disease (PD), transactive response DNA-binding protein 43 (TDP-43) in dementia. Neuroprotection refers to the strategies and possible mechanisms that are able to protect the central nervous system (CNS) against neuronal injury and neurodegenerative disorders. The past decade has witnessed an intense interest in herbal plants having long-term health-promoting or medicinal qualities. Comprehensive research and discovery have demonstrated that natural products, medicinal herbs, plant extracts, and their metabolites, have great potential as the neuroprotective agent. Although the precise mechanisms of action of herbal drugs have yet to be determined, some of them have been shown to prevent formation of beta-amyloid plaques, promote nerve growth, some inhibit acetylcholinesterase (AChE) enzyme and malondialdehyde (MDA) formation in brain while other exhibits antioxidant activity by increasing the level of superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx). Thus the herbal plants can be a valuable source of the drug against neurodegenerative disorders which will require high-throughput screening. This review will highlight the role of herbal plants and their phytoconstituents against neurodegenerative diseases and other related disorders, focusing on their mechanism of action and therapeutic potential.

keywords:- Neurodegenerative disease, Neuroprotective, Herbal Medicine.

Introducation: - Neurodegenerative diseases are characterized by progressive dysfunction and loss of neurons leading to the distinct involvement of functional systems defining clinical presentations. Neurodegeneration is a process involved in both neuropathological conditions and brain aging. It is known that brain pathology in the form of the cerebrovascular and neurodegenerative disease is a leading cause of death all over the world, with an incidence of about 2/1000 and an 8% total death rate .

Neuroprotection is a term used to refer to strategies and relative mechanisms that shield the central nervous system (CNS) from neuronal injuries caused by chronic (e.g., Alzheimer's and Parkinson's diseases) or acute (e.g., stroke) neurodegenerative diseases (NDs). These acute or chronic diseases result from breakdown and deterioration of neurons of the CNS and often result in the deterioration of the cognitive as well as the intellectual faculties of the sufferers. The onset of NDs symptoms is usually gradual as well as progressive and includes loss of memory, primarily short-term, difficulty in learning, motor coordination, and many other functional loses. Ageing, defined as a complex physiological process involving both morphological and biochemical changes that progressively unfold as we get older, has been found to be closely associated with NDs. Ageing stands out as a major

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RECENT ADVANCES IN HERBAL NANOTECHNOLOGY

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Abstract: Since ancient times, potential of plants in research and medicine have found pronounced applications, due to better erapeutic value. To meet the mounting demands for commercial nanoparticles, novel eco-friendly methods of synthesis has led to a remarkable progress via unfolding a green synthesis protocol towards metallic nanoparticles synthesis. Nanotechnology on herbal constituents to tailoring for its potential benefits has been gained an imperative circumstance in recent times. Researchers are focused on the nanotizing the herbal proportions to render and take diversified advantages, as well as to precede futher explorations in the field.Nanophytomedicines are prepared from active phytoconstituents or standardized extracts. Nanotechnology has been considered to be a novel innovation of the period in different fields of science. The different types of nanocarriers that are used in cosmetics such as cubosomes, liposomes, hydrogels, dendrimes, nanoemulsions, nanocrystals, microemulsion, and solid lipid nanoparticles. These nanoparticles have benefits of higher stability, insolubility or bio-persistent, hyperpigmentation. This review on nanotechnology used in cosmetics draws special attention to different types of nanoparticles used in cosmetics and their characterization techniques.

Index Terms - Nanotechnology, herbal, Phytoconstituent.

INTRODUCTION:

Nanotechnology was subsequently established by the National Nanotechnology Initiative, which defined nanotechnology because the manipulation of matter with a minimum of 1 dimension sized from 1 to 100 nanometers. Nanotized herbal drug containing active principles of veteh root, seawort, cassia twig and liquorice root is found to be effective in pulmonary, liver, bone, brain and carcinoma. The in-vivo pharmacokinetic parameters of polymeric nanoparticles containing curcumin reveal a minimum of 9 fold increase in oral bioavailability as compared to curcumin administered with piperine as absorption enhancer. Incorporation of Nanotechnology on herbal constituents to tail oring for potential benefits has been gained a crucial circumstance in recent times. Researchers are focused on the nanotizing the herbal proportions to render and take diversified advantages, also on precede futher explorations within the sector. Nanophytomedicines are prepared from active phytoconstituents or standardized extracts. Liposome nanoparticle (NP) with entrapped doxorubicin has been reported to be 300 fold simpler thanks to better pharmacokinetic ability in treatment of Kaposi sarcoma. Nanotized herbal drug containing active principles of veteh ro ot, seawort, cassia twig and liquorice root is found to be effective in pulmonary, liver, bone, brain and carcinoma . The in-vivo pharmacokinetic parameters of polymeric nanoparticles containing curcumin reveal a minimum of 9 fold increase in oral bioavailability as compared to curcumin administered with piperine as absorption enhancer. Swarna bhasma has particle size of 56 nm. Liposome containing Aloe vera extract in size range but 200 nm diameter has shown higher rate of cell proliferation and increased synthesis of collagenase in in vitro test using human skin fibroblast and epidermal keratinocytes. The biological synthesis of nanoparticles could also be an economical and ecofriendly method and has ability to exchange the physical and chemical methods because these methods are toxic and dear.

Nanocarriers and Nanodevices:

Substantial researches on developing bio-compatible and biodegradable nanocarriers and nanodevices as novel drug delivery systems. Natural polymers or bio polymers are generally bio compatible, biodegradable, nontoxic and non-immunologic. Basically they are in bifold viz., polysaccharides and proteins. Chitosan, starch, dextran, and alginate are samples of commonly used polysaccharides while collagen, gelatin, and albumin are samples of commonly used proteins. These biopolymers are widely applied in formulation of nanospheres, nanocapsules, and recently nanofibers so as to reinforce drug delivery tospecific pharmacological sites or tissue engineering. Since the polymers are from natural origin, really it doesn't harm the living tissues.

Nanopores:

Nanoporesallow DNA to undergo one strand at a time hence DNA sequencing are often made more efficiently. Thus shape, electrical property of every base on strand is often monitored. As these properties are unique for every of 4 bases that structure ordering . The passage of DNA through a nanopore are often wont to decipher the encoded information including error in code related to cancer Nanopores, the small holes formed by proteins, might be used for a spread of applications, including sequencing DNA and detecting anthrax. Researchers reported the newest developments on natural and artificial nanopores and their applications at the March Meeting during a number of sessions dedicated to the subject.

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An overview of Stem cell therapy

Author: - Mrs. Kunal D. Sutar*, Ms. Rutika D. Harshad, Mrs. Omkar S. Sangar, Ms. Aishwarya C. Patil, Dr. Santosh A. Payghan

Abstract: - Stem cells are defined as strong clonogenic and regenerative cells and differentiate into multiple cell lines. Stem cells are found in all of us, from the earliest stages of human growth to the end of life. According to the classification of stem cells are divided into 5 types: totipotent, pluripotent, multipotent, oligopotent and unipotent. They are essential for growth, development, maintenance and repair of the brain, bones, muscles, nerves, blood, skin, and other organs. Stem cell therapy continues as a new flexible approach to the treatment of diseases and injuries, with extensive medical benefits. Stock research raises many ethical and scientific questions as well as future challenges. Stem cell therapy, a precursor to a period of cell-based treatment that will one day restore function to those whose lives are now facing the daily challenge, is on its way to recovery. Stem cells have great potential for tissue regeneration and tissue repair but much remains to be learned about their biology, deception and safety before their full therapeutic potential can be discovered. In today's world, disease control is very exciting and new methods are available to provide quality patient care, on the basis of scientific experiments and practical studies conducted by various institutions and organizations. Mesenchymal stem cells (MSCs) are purchased from most body tissues usually by the placenta and umbilical cord but other sources such as bone marrow found in MSCs are also important as each source will give the cells their own characteristics. They can be used for a variety of heart-related problems, bacterial infections, cirrhosis, liver failure, diabetes, and cancer treatment. A variety of procedures, whether physical or surgical, are available including cell therapy, tissue, osteo-gineering engineering and immunosuppressive tests to treat disease and ensure complete recovery.

Keywords: - Mesenchymal stem cells, stem cells, cell-based therapies

Introduction: -The human body is made up of about 200 specialized cells, such as muscle cells, nerve cells, fat cells, and skin cells. All special cells come from stem cells. A stem cell is an unselected cell. Different types of stem cells have different levels of potency. The stem cell of almost every cell in the body is called a pluripotent and the stem cell of only certain cell types is called multipotent[1].

stem cells are defined as cells with clonogenic and regenerative capacity and divide many cell lines. Stem cells are found in all of us, from the earliest stages of human growth to the end of life. Stem cells that are unknown cells grow into specialized cells that form different types of tissue in the human body. Scientists have recently come to understand stem cells well enough to consider the possibility of long-term growth outside the body. At that early stage, more difficult tests can be performed, and it is possible to exploit these cells in such a way that certain tissues can grow literally[2]

Stem cells are the basic cells of all the organs and tissues in our body. The very special cells that make up these tissues originally came from the first pool of stem cells that were formed shortly after conception. Throughout our lives, we continue to rely on stem cells to replace damaged tissue and cells that are lost every day, such as those in the skin, hair, blood and intestinal tract.

1966, intraperitoneal distribution chambers implanted with rat bone marrow cells showed that isolated "stem" cells were present and led to osteogenic concentrations of alkaline phosphatase (AlkP) cells and fibroblasts during hematopoietic cells.

Cells are capable of building all the tissues in the human body, which is why they have great potential for future medical use in tissue regeneration and repair. For cells to fit within the definition of "stem cells," they must reflect two important characteristics. First, stem cells must be able to reproduce indefinitely to produce exactly the same as the emerging cell. This feature also applies to cancer cells that divide in an uncontrolled way and stem cell division is highly regulated. Therefore, it is important to note the additional requirement for stem cells; they must be able to provide a special cell type that becomes part of a healthy animal[5]. It is essential for growth, development, maintenance and repair of the brain, bones, muscles, nerves, blood, skin, and other organs. While stem cell-based therapies have been developed as standardized care, such as hematopoietic stem cell transplants for leukemia and epithelial stem cell-based treatment of burns and corneal disorders, the prevalence of cell-based therapies has increased in recent years as a result of advances. . in stem cell research.

In 2006, researchers made further progress by identifying conditions that would allow certain specialized cells to be "genetically modified" for a stem cell. This is a new stem type called stem pluripotent stem cells (IPSCs) [6]. At that time there may still be a difficult test, and it is possible to use these cells in such a way that certain tissues can actually grow.

The common term, "cell stem" includes many types of cells. Normally, modifiers, "embryonic," and "adult" are used to classify stem cells by the growth stage of the animal from which they originated, but these terms are not sufficient as new research has found how to regenerate old cells completely separated from embryonic stem cells, and , stem stem cells, aptly called "somatic" stem cells meaning "in the body", are found in the fetus, brain, spinal cord and in infants. Thus, stem cells are divided into two groups based on their biologic genes - pluripotent stem cells and multi-stem cells. Their sources, features, differences and treatment requests are discussed. [1]

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Renal Stone Disease: Genesis, Evolution And Iatric Treatment

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Abstract:
The purpose of the current review is to provide updates on the most common risk factors or medical conditions associated with kidney stone formation, current available methods of metabolic investigations, dietary recommendations and treatment. Laboratory tests for hypercalciuria, hyperuricosuria, hyperoxaluria, cystinuria, hypocitraturia, renal tubular acidosis, urinary tract infections and decreased urine volume are based on the results of 24-hour urine and urine collection and urine collection. and pH. Blood tests for creatinine, calcium and uric acid should be obtained. Bone mass should be determined primarily between hypercalciuria and primary hyperparathyroidism to be ruled out. Current information does not support calcium channel recommendations as it may lead to the treatment of hyperoxaluria and osteoporosis. Reduction of animal protein and salt intake, high liquid consumption and potassium consumption should be done. Medications include the use of thiazide, allopurinol, potassium citrate or other drugs according to the disorder. Correction of these abnormalities in the body is a basic tool to prevent or reduce the formation of recurrent stones.

Keyword: Kidney stones; Nephrolithiasis; Hypercalciuria; Osteopenia, Calcium; Oxalate

Introduction

The formation of kidney stone is also known as renal calculi or crystal. It is a serious but life-threatening disease worldwide. In medical terms the calorie content of urine content is called nephrolithiasis and urolithiasis where the root word "Lith" means "stone." Kidney stones formed by one or both kidneys can grow on one or both kidneys. The medical name for kidney stones is nephrolithiasis. When stones cause severe pain, this is known as renal colic. Kidney stone is a solid mass made of crystals that separate urine from the urinary tract. Generally, urine contains chemicals that inhibit or prevent crystals from forming. These inhibitors do not seem to work for everyone, however, so some people form stones. If the crystals remain small enough, they will pass through the urinary tract and then pass through the urinary tract unknowingly. Kidney stones can contain a combination of different chemicals. The most common type of stone contains calcium in combination with oxalate or phosphate. These chemicals are part of the normal human diet and make important parts of the body, such as bones and muscles. A rare type of stone is caused by an infection in the urinary tract. This type of stone is called struvite or infection stone. Other types of stones, uric acid stones, are rare, and cystine stones are rare.

Overview of Kidney Stones

Kidney stones are mostly implanted in the kidneys. Mankind has suffered from urinary stones since the centuries beginning 4000 BC and is the most

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NATURAL ISOLATED COMPOUND USED FOR TREATMENT OF COLORECTAL CANCER.

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Abstract:

We describe here the main natural ingredients used for cancer treatment and prevention, the historical features of their application and pharmacognosy. Two major applications of these compounds are described: such as cancer treatment and chemotherapy. Both natural and synthetic compounds, either derived from plants or animals or produced by antibiotics, and synthetic compounds, derived from natural extracts, are used. Other current critical aspects of cancer chemistry are also being discussed, focusing on genes and genes, as well as the latest cancer-changing concept: aneuploidy as the premium movens of cancer.

Keyword - Colorectal Cancer, Alkaloid, Chitin, Polysaccharide.

Introduction:

Evidence of cancer has been found in ancient fossils and in medical literature from antiquity, from the time of Pharaoh in ancient Egypt to the ancient world. Although it is difficult to interpret the diagnosis of doctors who live hundreds of years ago, we can assume that many of their explanations are related to cancer cases. Ancient medical literature reports that surgery was performed but doctors also recommended the use of certain natural products, especially plant products, which represent an interesting comparison point with current knowledge. Natural products play an important role in cancer treatmen today with the large number of anticance agents used clinically natural or found i natural products from a variety of source such as plants, animals and micro organisms (also from the sea) (Fig. 1) Major cancer drug detection programs an screening programs such as those promote by the National Cancer Institute (NCI) hav played an important role in th development of natural cancer-causin chemicals. Over the past few years, th availability of natural product drugs ha increased with new technologies, such a combination and advanced testing, as wel

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A Review Article on: Aloe Vera : Extraction of Gel and Extraction of Aloin From Aloe Vera Gel by Ultrasonic Assisted Method

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Abstract:

Aloe vera belongs to the family Xanthorrhoeaceae commonly known as GhritKumari, is theoldest medicinal plant ever known and the most applied medicinal plant worldwide. Phytochemistry of aloe Vera gel has revealed the presence of more than 200 bioactive chemicals.Aloe Vera gel is extracted from its leaves and appropriate processing techniques are needed for stabilization as well as preparation of the end products. Use of Aloe Verain nutritional, pharmaceutical and cosmetic preparations draw attention for generation of scientific information . In this review paper, different processing aspects like extraction of gel and extraction of aloin were critically described from different references.Aloin is main chemical constituent in AloeVerawhich is anthraquinone .It is a yellow colour compound is mixture of two diastereoisomers, aloin A and Aloin B.It has powerful laxative properties. It is used as ingredients of various laxative pharmaceutical preparations. Ultrasound assisted extraction intensifies the kinetic of the extraction process by acting upon the interfacial area, through the disintegration of particles compared with batch extraction, it improves the extraction process decreasing both extraction time and temperature while increasing the rate of extraction.UAE technique was used to obtain active principal aloin from aherbal plant aloe vera.methanol was selected as organic solvent as fond maximum extraction of aloin with it .the active principle aloin was quantified using WATER's HPLC system. The external use in cosmetic primarily acts as skin healer and prevents injury of epithelial tissues, cures acne and gives a youthful glow to skin, also acts as extremely powerful laxative.

Keyword:chemical components, extraction of gel , processing,extraction of aloin, uses, etc.

Introduction:

Medicinal plant has specific property and specific use owing to their biological group ofcompounds. Several species of the genus aloe has been in use under the common name of aloe viz. Aloe Vera, Aloe barbadensis, Aloe ferox,Aloe chinensis, Aloe indica, Aloe peyrii, etc.Amongst these Aloe VeraLinn syn. Aloebarbadensis Miller is accepted unanimously asthe correct botanical source of aloe. Aloe VeraGel is the colorless mucilaginous gel obtained from the parenchymatous cells in the fresh leaves of Aloe Vera(L) Burm. f. Aloe VeraLatex (Aloin, a bitter tasting purgative, is destructive to healthy tissue and cells) is obtained from specialized cells known as pericyclictubules that occur just beneath the epidermis or rind of the leaves. Aloe

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A REVIEW ON THE RELATIONSHIP OF MAST CELLS AND MACROPHAGES IN BREAST CANCER

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Abstract-This article investigated all about breast cancer a different dimensions of breast cancer and its associated factors. It revealed that breast cancer was and continues to be among the most prevalent and growing malignant diseases among Iranian women in the past four decades. Also there are mast cells and their relation between breast cancers is shows. In this article, required information was collected through literature review and keyword (cancer, breast cancer, cell, gene, life quality, women, prevalence, productivity, age, obesity, alcohol, cigarette, menopause, genetic, Cytokine, and mortality) this disease affects all physical, mental, and social aspects of women life. On the other hand, such factors as social and family supports during the illness can reduce its damages.

Index Terms - Cancer, diagnosis, mast cells.

INTRODUCTION:

This article provides a standing report on the worldwide burden of cancer worldwide using the GLOBOCAN 2018 estimates of cancer incidence and mortality produced by the International Agency for Research on Cancer, with attention on geographic variability across 20 world regions. There'll be an estimated 18.1 million new cancer cases (17.0 million excluding non-melanoma skin cancer) and 9.6 million cancer deaths (9.5 million excluding non-melanoma skin cancers) in 2018. In both sexes combined, carcinoma is that the most ordinarily diagnosed cancer (11.6% of the entire cases) and therefore the leading explanation for cancer death (18.4% of the entire cancer deaths), closely followed by female carcinoma (11.6%), prostatic adeno-carcinoma (7.1%), and colorectal cancer (6.1%) for incidence and colorectal ancer (9.2%), stomach cancer (8.2%), and cancer of the liver (8.2%) for mortality. carcinoma is that the most frequent cancer and therefore the leading explanation for cancer death among males, followed by prostate and colorectal cancer (for incidence) and liver and stomach cancer (for mortality). Among females, carcinoma is that the most ordinarily diagnosed cancer and therefore the leading explanation for cancer death, followed by colorectal and carcinoma (for incidence), and the other way around (for mortality); cervical cancer ranks fourth for both incidence and mortality. the foremost frequently diagnosed cancer and therefore the leading explanation for cancer death, however, substantially vary across countries and within each country counting on the degree of economic development and associated social and life style factors. it's noteworthy that high-quality cancer registry data, the idea for planning and implementing evidence-based cancer control programs, aren't available in most low- and middle-income countries. The worldwide Initiative for Cancer Registry Development is a world partnership that supports better estimation, also because the collection and use of local data, to prioritize and evaluate national cancer control efforts.

Against this backdrop, the present article provides a standing report on the cancer burden worldwide in 2018, supported the GLOBOCAN 2018 estimates of cancer incidence and mortality produced by the International Agency for Research on Cancer (IARC).6 As in previous reports for 2002, 7 2008, 8 and 2012, 9 the first focus is on an outline of cancer incidence and mortality at the worldwide level and an assessment of the geographic variability observed across 20 predefined world regions. We describe the magnitude and distribution of the disease overall and for the main cancer types, commenting briefly on the associated risk factors and prospects for prevention of the main cancers observed worldwide. We conclude by stating the restrictions of the exercise and therefore the need for population-based national and subnational cancer surveillance data to enhance the accuracy of the GLOBOCAN estimates and inform on-the-ground initiatives in cancer control.Breast cancer is that the commonest sort of cancer in women and therefore the second commonest cancer overall. Over 2 million new cases of carcinoma appeared in 2018, and its incidence and mortality are rapidly growing worldwide. Carcinoma may be a complex and heterogeneous disease in terms of microscopic features, therapeutic response, spreading to distant sites, and patients' outcomes. A possible explanation might be, in part, that we still lack an entire picture of the biological heterogeneity of carcinoma with reference to molecular changes and cellular composition.

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NATURAL PLANT HERBS USED AS NEUROPROTECTIVE AGENT

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Abstract:-

Neurodegeneration refers to a condition of neuronal death occurring as a result of progressive disease of long-term and is becoming a major health problem in the 21st century. Neurons degenerated are not replaced resulting in a cognitive loss, many neurodegenerative disorders, such as schizophrenia, depression, Alzheimer's disease (AD), dementia, cerebrovascular impairment, seizure disorders, head injury, parkinsonism. The common pathology of neurodegeneration includes deposition of misfolded proteins such as amyloid-β (Aβ) in Alzheimer's disease, α-synuclein in Parkinson's disease (PD), transactive response DNA-binding protein 43 (TDP-43) in dementia. Neuroprotection refers to the strategies and possible mechanisms that are able to protect the central nervous system (CNS) against neuronal injury and neurodegenerative disorders. The past decade has witnessed an intense interest in herbal plants having long-term health-promoting or medicinal qualities. Comprehensive research and discovery have demonstrated that natural products, medicinal herbs, plant extracts, and their metabolites, have great potential as the neuroprotective agent. Although the precise mechanisms of action of herbal drugs have yet to be determined, some of them have been shown to prevent formation of beta-amyloid plaques, promote nerve growth, some inhibit acetylcholinesterase (AChE) enzyme and malondialdehyde (MDA) formation in brain while other exhibits antioxidant activity by increasing the level of superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx). Thus the herbal plants can be a valuable source of the drug against neurodegenerative disorders which will require high-throughput screening. This review will highlight the role of herbal plants and their phytoconstituents against neurodegenerative diseases and other related disorders, focusing on their mechanism of action and therapeutic potential.

keywords:- Neurodegenerative disease, Neuroprotective, Herbal Medicine.

Introducation: - Neurodegenerative diseases are characterized by progressive dysfunction and loss of neurons leading to the distinct involvement of functional systems defining clinical presentations. Neurodegeneration is a process involved in both neuropathological conditions and brain aging. It is known that brain pathology in the form of the cerebrovascular and neurodegenerative disease is a leading cause of death all over the world, with an incidence of about 2/1000 and an 8% total death rate .

Neuroprotection is a term used to refer to strategies and relative mechanisms that shield the central nervous system (CNS) from neuronal injuries caused by chronic (e.g., Alzheimer's and Parkinson's diseases) or acute (e.g., stroke) neurodegenerative diseases (NDs). These acute or chronic diseases result from breakdown and deterioration of neurons of the CNS and often result in the deterioration of the cognitive as well as the intellectual faculties of the sufferers. The onset of NDs symptoms is usually gradual as well as progressive and includes loss of memory, primarily short-term, difficulty in learning, motor coordination, and many other functional loses. Ageing, defined as a complex physiological process involving both morphological and biochemical changes that progressively unfold as we get older, has been found to be closely associated with NDs. Ageing stands out as a major

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Distribution and biological activity of alkaloids in some Indigenous plants.

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Abstract:
Plants have always been a basis for the normal medicine systems and that they have provided continuous remedies to the mankind for thousands of years. Therapeutic application of plants having anti-tumor, anti-viral, anti-inflammatory, anti-malarial activities. Knowledge of the plants for the preparation of different drugs has been of great significance. Plants are considered as a rich source of wide variety of ingredients which can be used for the event of drug. Alkaloids are the important secondary metabolites that are contain therapeutic properties. On the aim of their biosynthetic precursor and heterocycle system, the compounds areclassified into different categories which include indole, piperidine, tropane, purine, pyrrolizidine, imidazole, quinolozidine, isoquinoline and pyrrolidine alkaloids. Alkaloids are able to prohibit the onset of various degenerative diseases by radical scavenging or binding with the oxidative reaction catalyst. Several studies are wiped out evaluation of alkaloids from various plants for its wide selection of pharmaceutical activities. This review provides an summary of alkaloid drugs that are derived from the numerous plants and potential against various diseases.

Keywords: alkaloid drugs, distribution and biological activity, plant alkaloids, therapeutic compounds

Introduction:
Alkaloids are a category of basic, present organic compounds that contain a minimum of one nitrogen atom. This group also having several connected compounds with neutral and even weakly acidic properties. Some synthetic compounds of comparable structure also be termed alkaloids. including to carbon, hydrogen and nitrogen, alkaloids can also carry oxygen, sulfur and, more rarely, other elements like chlorine, bromine, and phosphorus. Alkaloids are produced by an outsized sort of organisms including bacteria, fungi, plants, and animals.They are often purified from crude extracts of those organisms by acid-base extraction, or solvent extractions followed by silica-gel chromatography . Alkaloids have a superior range of pharmacological activities of antimalarial (e.g. quinine), antiasthma (e.g. ephedrine), anticancer (e.g. homoharringtonine), cholinomimetic (e.g. galantamine),vasodilatory (e.g. vincamine), antiarrhythmic (e.g. quinidine), analgesic (e.g. morphine), antibacterial (e.g. chelerythrine), and antihyperglycemic activities (e.g. piperine).

There many have found use in traditional or modern medicine, or as starting points for drug discovery. Other alkaloids possess psychotropic (e.g. psilocin) and stimulant activities (e.g. cocaine, caffeine, nicotine, theobromine), and are to take advantage in entheogenic rituals or as recreational drugs. Alkaloids are often toxic too (e.g. atropine, tubocurarine). Although alkaloids act on an assortmrnt of metabolic systems in humans and other animals, they almost uniformly evoke a bitter taste.

Generally, alkaloids are excessively toxic though they have a marked therapeutic effect in small quantities. They ensure plant survival against micro-organisms insects and herbivores, and also against other plants by means of allelopathically active chemicals. That is why they are used for medicinal purpose. They are optically active substances, bitter in taste, colorless, crystalline or liquid at room temperature.The alkaloid quinine for instance is one among the bitterest tasting substances known and is already significantly bitter at a molarity of 1 × 10−5Pure, Segregatede plant alkaloids and their synthetic derivates are used as basic medicinal agents all over the world for their analgesic, spasmolytic, and bactericidal effects . In humans, most of the alkaloids affects the

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Drug Delivery Systems Based on Polymeric Micelles

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Abstract:-

Polymeric micelles have been extensively studied as nanocarriers for hydrophobic drugs. They can be designed to have the intensity of duration and blood circulation, as well as binding specificity to certain highly stressed receptors on the surface of cancer cells. y. The incorporation of these agents into nanoparticles reduces the adverse effects of standard chemotherapy on healthy tissues. Such nanoparticles, considered to be drug-transporting vehicles, are versatile and include micelles, liposomes, dendrimers, nanocapsules, nanospheres and more. Polymeric micelles have been extensively studied as nanocarriers for hydrophobic drugs. They can be designed to have the intensity of duration and circulation, as well as binding specifications to certain more receptors expressed on the surface of cancer cells. When these drug-induced nanoparticles reach the plant surface, an external stimulus, such as ultrasound, can be used to introduce local and temporary drug release.

Keywords:- Cancer, chemotherapy, drug release, polymeric micelles, triggered release

Introduction :-

The Several, effective uses of surfactants are based on the multiplicity of their molecular characteristics, that is, they are formed by the water-loving polar head group and the non-water-repellent tail group. Many variations are possible in the head group and in the tail of the surfactants group. For example, the primary group may be anionic, cationic, twitter ionic, or non-ionic. It can be small and compacted in size or series of oligomeric[1]. The tail group can be hydrocarbon, fluorocarbon, or siloxane. It can contain straight chains, branch structures or rings, multiple chains, etc. Surfactant molecules with two headgroups (ball surfactants) are also available. In addition, head groups and tail groups can be polymeric in character, as in the case of block copolymers. This diversity in the cellular structure of biological agents allows for a wide range of variations in their solution and in interactions with humans. It is only natural that one would like to find a link between the molecular structure of surfactant and its physicochemical action so that surfactants can be synthesized or selected according to the specific application offered. Therefore, there has been a growing interest in the development of a drug delivery system that is not only powerful but also defines the environment [2]. In recent years, nanotechnology has focused heavily on the numbers of researchers around the world in terms of its importance in increasing efficiency, specificity, tolerance, and therapeutic index of complementary drugs. Several techniques have been proposed such as micronization, complexation, solid solution formulation, microemulsification, and novel drug delivery systems including nanoparticles, lipid-based vesicles, and micelles[3]. Among these approaches, polymeric micelles (PMs) have received much attention over the past two decades as a multidisciplinary delivery system based on nanotechnology of water-soluble chemicals. According to IUPAC, polymeric micelles are a systematic auto- Assembly composed of liquids

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Liposomes a Camouflaged Carrier: For Controlled Drug Delivery

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Abstract: ***Controlled drug delivery is that type of system that dispenses the drugs in the dosage form at a prescribed local dose or systematically for a specified period of time. The liposome is a circular fabric made up of one or more phospholipid circles, which closely resembles the cell membrane. The ability of liposomes to incorporate hydrophilic or lipophilic compounds has allowed these vesicles to become efficient delivery systems. The liposome is a tiny bubble (vesicle), made of the same material as the cell membrane. Liposomes can be filled with drugs, and used to deliver cancer drugs and other diseases. Ribs are usually made of phospholipids, molecules with a group of head and tail.***

Keywords: Liposomes, Controlled Drug Delivery, vesicle

1. Introduction

Liposomes were first produced in England in 1961 by Alec D. Bangham, who studied phospholipids and blood clotting [6] In all novel drug delivery systems, liposomes are considered the most useful, researched and comprehensive. The circular vesicle formed by the spinal cord enclosed in phospholipid molecules is commonly known as the liposome [5]. The word liposome is derived from two Greek words: 'Lipos' meaning' fat 'and' Soma 'meaning' body. [7] A few successes since the discovery of banned liposomes in microscale to nanoscale as well as a surface-based polymer working with peptide, protein, and antibody. Although liposomes have been widely studied as promising carriers of therapeutic chemicals, some of the major drawbacks of liposomes used in pharmacology are rapid deterioration due to reticulo endothelial system (RES) and failure to deliver long-term drug delivery [1]Alec Bangham first explained that membrane molecules, e.g. phospholipids, combine with water to form different structures now labeled as liposomes4 and found that phospholipids combined with water form a direct base because one side of each molecule dissolves in water, and the opposite side is insoluble. Water-soluble drugs have been added to the water trap within the integration of hydrophobic limits; fat-soluble drugs are placed in layers of phospholipids. [7] To enter the market, Liposome must remain consistent and uninterrupted during and after the arrival of the intended destination to produce a therapeutic action. However, due to physiological and chemical instability, liposomes are an unstable colloidal system [5]. There are two types of liposome identification: synthetic and functional5. Negative identification uses the natural tendency of other cells namely Kupffer cells in the liver and macrophages of the mononuclear phagocyte (MPS) system to foreign microparticles such as liposomes5. The result of this phagocytosis is the inactivation of the drug trapped in the desirable part5. Effective administration requires the formation of immune liposomes before their direct contact with target tissues. Although the presence of poorly charged lipids in liposomes including phosphatidic acid (PA), phosphatidylserine (PS) and phosphatidylglycerol (PG) leads to rapid absorption by the mononuclear phagocyte system (MPS), the relationship between the presence of lipids charged and life cycle cycle is very complex. The longer a liposome can circulate to prevent liver transplantation, the greater the chance that it will leave the vascular system in areas where the blood vessels are full. Summary drugs can be released in a variety of ways such as: fusion, difference in pH and temperature. The rate of excretion in liposomal formation depends on the drug. Therapeutic benefits will be obtained if the drug is stored in liposomes a few hours after administration. Major instability of liposomes is associated with their hydrolysis potential, as well as peroxidation reactions and the ability to synthesize. The chemical instability of liposomes can be caused by the hydrolysis of the ester bond and / or the peroxidation of acyl chains unlit in lipids through a large free radical reaction. Peroxidation reactions can be avoided by choosing lipids with only full bonds, subconscious, and the inclusion of antioxidants such as α-tocopherol, quercetin and coenzyme Q (CoQ) and chelating agents. A day of literature shows that by using grape seed extracts to prepare chitosan-liposomes chemical stability against lipid oxidation is enhanced The kinetic hydrolysis of phospholipids depends on temperature, pH and bilayer rigidity. The choice of the appropriate liposome type depends on the physicochemical properties of the substance to be absorbed, its active concentration, strong toxicity and internal volume. The effectiveness of encapsulation depends largely on the liposomal content, lipid concentration, method of preparation and the drug used. The different ways in which liposomes are prepared lead to the formation of liposomes of various sizes and characteristics. An important part of the liposome is produced by phospholipids, which are amphiphilic particles (with a hydrophilic head and a hydrophobic tail). The hydrophilic component is usually phosphoric acid bound to a water-soluble molecule, whereas the hydrophobic component consists of two chains containing 10 - 24 carbon atoms and 0 - 6 bonds in each chain. When these phospholipids are dispersed in a wet environment, they form lamellar sheets by arrangement in such a way that, the polar head group faces out in the wet region while the fatty groups face. The polar part is always in contact with the watery region and the

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NATURAL PLANT HERBS USED AS NEUROPROTECTIVE AGENT

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Abstract:-

Neurodegeneration refers to a condition of neuronal death occurring as a result of progressive disease of long-term and is becoming a major health problem in the 21st century. Neurons degenerated are not replaced resulting in a cognitive loss, many neurodegenerative disorders, such as schizophrenia, depression, Alzheimer's disease (AD), dementia, cerebrovascular impairment, seizure disorders, head injury, parkinsonism. The common pathology of neurodegeneration includes deposition of misfolded proteins such as amyloid-β (Aβ) in Alzheimer's disease, α-synuclein in Parkinson's disease (PD), transactive response DNA-binding protein 43 (TDP-43) in dementia. Neuroprotection refers to the strategies and possible mechanisms that are able to protect the central nervous system (CNS) against neuronal injury and neurodegenerative disorders. The past decade has witnessed an intense interest in herbal plants having long-term health-promoting or medicinal qualities. Comprehensive research and discovery have demonstrated that natural products, medicinal herbs, plant extracts, and their metabolites, have great potential as the neuroprotective agent. Although the precise mechanisms of action of herbal drugs have yet to be determined, some of them have been shown to prevent formation of beta-amyloid plaques, promote nerve growth, some inhibit acetylcholinesterase (AChE) enzyme and malondialdehyde (MDA) formation in brain while other exhibits antioxidant activity by increasing the level of superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx). Thus the herbal plants can be a valuable source of the drug against neurodegenerative disorders which will require high-throughput screening. This review will highlight the role of herbal plants and their phytoconstituents against neurodegenerative diseases and other related disorders, focusing on their mechanism of action and therapeutic potential.

keywords:- Neurodegenerative disease, Neuroprotective, Herbal Medicine.

Introducation: - Neurodegenerative diseases are characterized by progressive dysfunction and loss of neurons leading to the distinct involvement of functional systems defining clinical presentations. Neurodegeneration is a process involved in both neuropathological conditions and brain aging. It is known that brain pathology in the form of the cerebrovascular and neurodegenerative disease is a leading cause of death all over the world, with an incidence of about 2/1000 and an 8% total death rate .

Neuroprotection is a term used to refer to strategies and relative mechanisms that shield the central nervous system (CNS) from neuronal injuries caused by chronic (e.g., Alzheimer's and Parkinson's diseases) or acute (e.g., stroke) neurodegenerative diseases (NDs). These acute or chronic diseases result from breakdown and deterioration of neurons of the CNS and often result in the deterioration of the cognitive as well as the intellectual faculties of the sufferers. The onset of NDs symptoms is usually gradual as well as progressive and includes loss of memory, primarily short-term, difficulty in learning, motor coordination, and many other functional loses. Ageing, defined as a complex physiological process involving both morphological and biochemical changes that progressively unfold as we get older, has been found to be closely associated with NDs. Ageing stands out as a major

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Natural Source of Immunity Booster

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Abstract: The immune system is one of the most developed in nature. It is an amazing defense designed to protect us from millions of germs, viruses, fungi, toxins and parasites. The immune system is very complex. It is made up of several types of cells and proteins that have different functions to fight off foreign invaders. The immune system plays a key role in the immune system. Natural antibodies are a product, which helps to increase the immune system. Citrus Fruit, Red bell pepper, Broccoli, Garlic, Ginger, spinach, yogurt and almonds, etc. b12. When our immune system is working properly, we are protected from the dangers posed by germs. If not, we are suffering from sickness and disease. You may be involved in this process and make our immune system stronger by using immune boosters. Immune boosters work in various ways. They increase the number of white blood cells in the immune system and train them to fight off pathogens. Eating a low-fat, plant-based diet can help give your immune system a boost. The immune system relies on white blood cells to produce antibodies to fight off viruses, bacteria, and other invaders.

Key words; Immunity, Natural Immunity booster, fight against.

Introduction: The immune system is the main immune system and, in some cases, the body may not be able to get enough response. Therefore, it is important to eat a diet that strengthens the immune system to fight off seasonal infections such as flu and infection, cancer, arthritis, allergies. Sometimes, during a cold or flu, one will wonder why some people are not infected even though they are in contact with those who have the disease, considering that the flu and cold are spread by airborne droplets. Yes, it is because some people have a stronger immune system than others. How did this happen? Remember, the immune system is the first line of defense in the antigen that attacks the body. therefore, as the immune system is stronger, it is less likely to develop other diseases but not completely.

Dietary changes can increase and strengthen the immune system of a person with weakened immune systems such as people with health problems such as diabetes, high blood pressure, other anemia such as HIV / AIDS.

How the immune system works: -

Depending on the antigen load, the immune system responds quickly by producing specific antibodies against the antigen in large quantities. The function of the immune system is enhanced by its ability to detect millions of antigens and to produce antibodies against the immune system.

In addition to its ability to attack millions of antigens, it is important to increase the immune system to act against antigens. Immunosuppression means eating or consuming certain foods that provide additional benefits to the body. To strengthen the immune system, it is important to take the right kind of diet in the right quantities. Depending on the antigen load, the immune system responds quickly by producing specific antibodies against the antigen in large quantities. The function of the immune system is enhanced by its ability to detect millions of antigens and to produce antibodies against the immune system.

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GREEN SYNTHESIS OF SILVER NANOPARTICLES OFRICINUS COMMUNIS AND INVESTIGATION OF IN-VITRO ANTHELMINTIC ACTIVITY AGAINST PHERETIMA POSTHUMA

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ABSTRACT

Development of anthelmintic drugs leads to evaluation of medicinal plants as a source of anthelmintic. In view of this, an attempt has been made to study the anthelmintic activity of leaves of plant of ***ricinus communis*** silver nanoparticles. In the current study, experiments were conducted to evaluate the possible anthelmintic activity of silver nanoparticles of the leaves of plant extract of ***ricinus communis***. Various concentrations (10, 20, 30, 40, 50 µg/ml) of nanoparticles were tested and results were expressed in terms of time for paralysis and time for death of worms. Albendazole used as a reference standard and saline as a control group. The prepared nanoparticles showed particle size with mean diameters 328.4 nm and zeta potential -19.6 mV.

KEYWORDS: ***Ricinus communis***, Anthelmintic activity.

INTRODUCTION

Helminthes infection are the important and among the most common infections in human being, affecting a large proportion of the world's population. The disease is highly prevalent particularly in third world countries due to poor management practices. In developing countries they pose a large threat and public health and contribute to prevalence of anemia, malnutrition, eosinophilia and pneumonia.[1] Anthelmintic or anthelmintic are drugs that expel parasitic worms (helminthes) from the body. Anthelmintic is drugs that may act locally to expel out worms from the GIT. Most of the existing anthelmintic produces side effects such as abdominal pain, loss of appetite, nausea, vomiting, head ache and diarrhea. Hence there is an increasing demand towards natural anthelmintic.

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SCREENING OF IN-VITRO ANTHELMINTIC ACTIVITY OF SILVER NANOPARTICLES OF *EUCALYPTUS GLOBULUS* AGAINST PHERETIMA POSTHUMA

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ABSTRACT The biological syntheses of silver nanoparticles emerge as an eco-friendly and exciting approach in the field of nanotechnology. The human nature has never been free of health related problems neither has found single ever curing drug. Plants have been used until today as immediate remedy for various alignments. In the current study, experiments were conducted to evaluate the possible anthelmintic activity of silver nanoparticles of the leaves of plant Eucalyptus globulus. The prepared nanoparticles showed particle size 259.5 nm and zeta potential -27.9 mV. Various concentrations (10, 20, 30, 40, 50 µg /ml) of silver nanoparticles were tested and results were expressed in terms of time for paralysis and time for death of worms.

KEYWORDS : *Eucalyptus globulus*, silver nanoparticles, Anthelmintic activity.

INTRODUCTION:

Helminthes infection are the important and among the most common infections in human being, affecting a large proportion of the world's population. The disease is highly prevalent particularly in third world countries due to poor management practices. In developing countries they pose a large threat and public health and contribute to prevalence of anemia, malnutrition, eosinophilia and pneumonia. Anthelmintic are drugs that expel parasitic worms (helminthes) from the body. Anthelmintic are drugs that may act locally to expel out worms from the GIT. Most of the existing anthelmintic produces side effects such as abdominal pain, loss of appetite, nausea, vomiting, head ache and diarrhea.

Helminthes infections, commonly called helminthiasis are among the most important animal diseases inflicting heavy production losses causing more morbidity and greater economic and social deprivation among humans and animals than any single group of parasites.[1] The disease is highly prevalent particularly in third world countries due to poor management helminthiasis practices.

Nanotechnology is a broad interdisciplinary area of research, development and industrial activity which has grown very rapidly all over the world for the past decade. Silver nanoparticles (AgNPs) are very important among the most widely used metal nanoparticles. The use of plant extracts to synthesize nanoparticles is receiving attention in recent times because of its simplicity. Also, the processes are readily scalable and may be less expensive. Plant extracts may act both as reducing agents and stabilizing agents in the synthesis of nanoparticles. A number of plant extract mediated synthesis of AgNPs have been reported in the literature but no any method available of silver nanoparticles of ***Ricinus communis*** as an anthelmintic agent. There are several techniques that are known to produce extract into nanoparticles and to improve the activity of extracts. One of the current methods used to generate extract nanoparticles is by high pressure homogenization (HPH)[2-5]

The *Myrtaceae* family includes 140 genera and about 3800 species distributed in tropical and subtropical regions of the world. The essential oil 1, 8-Cineole is the pharmaceutically active component of Eucalyptus oil. alcohols, aldehydes, terpenes, ketones are extremely use full due to their antiviral, antibacterial, antiseptic, anti-fungal, anti-inflammatory, disinfectant and sedative properties. In Ethiopia there are many plants with wide traditional use mainly to treat different diseases. However, almost all of them are not studied involving scientific methods. This shows scientific information regarding the medicinal plant should be incorporated as there is less know how in the people and less documented information.[6-12]

Eucalyptus plant is one amongst the victims. It is distributed in all most every part of the country than any plant species. However, with respect to its potential use there is insignificant information about it.

Therefore, the aim of this study is to assess the anthelmintic activity of silver nanoparticles from *Eucalyptus globulus* leaf extract. Taking into account the physicochemical properties of silver nanoparticles of *ricinus communis* with paralyzing capacity against helminthes have led to increase in the research on herbal nanoparticles and their potential application as anthelmintic.

MATERIAL AND METHODS:

Collection and Identification:

The leaves of *Eucalyptus globulus* were collected in Kodoli, Kolhapur District, and State of Maharashtra. These specimens were identified by in the Herbarium of Department of Pharmacognosy, Vasantidevi Patil Institute of Pharmacy Kodoli.

Fig. No 1 Leaves of *Eucalyptus globulus*

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Nanoparticles: As a Nano based Drug Delivery System

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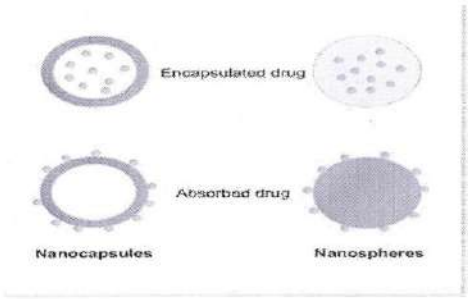
Abstract: ***Nanoparticles can offer important advantages over the administration of conventional drugs in terms of high stability, high specificity, high drug transport capacity, controlled release capacity, possibility of use in different routes of administration and the ability to administer drugs both hydrophilic and hydrophobic molecules. Nanoparticles are being used for various purposes, from medical treatments, use in various branches of the production industry such as solar and for energy storage, to a wide incorporation obsessed with various everyday materials such as cosmetics or dress, optical devices, catalytic, bactericidal, electronics, sensor technology, biological labelling and treatment of some cancers. Nanoparticles can be chemically or biologically synthesized. This review focuses on the need to develop nanoparticles, advantages, disadvantages, synthesis, properties, applications of nanoparticles exist in different forms. Nanoparticles are very capable in selective tumour contact cancer therapy due to their small size and modifiability. These particles consist of pure active pharmaceutical ingredients and are stabilized regularly with surfactant. Nanoparticles are tiny materials that have particle sizes in the range of 1 to 1000 nm.***

Keywords: Nanoparticles, polymeric nanoparticles, drug delivery

1. Introduction

The prefix "Nano" has found in the last section an increasing application to different fields of information. The prefix comes from the Latin nanus which literally means dwarf and, by extension, very small. Within the agreement of the International System of Units (SI) it is used to indicate a reduction factor of 109 times. Pharmaceutical nanoparticles are defined as solid drug carriers of submicron size (less than 100 nm in diameter) that may or may not be biodegradable.

The term nanoparticle is a combined name for "nanospheres" and "Nano capsules". Nanospheres are a matrix system in which the drug is homogeneously dispersed, while Nano capsules are the system in which the drug is surrounded by a single polymeric membrane.



Nanotechnology is the science of the little ones; the very small one. It is the use and manipulation of matter on a small scale. Nanotechnology has produced a wide variety of materials at nanoscale level. Nanoparticles (NP) are a broad class of materials that include particulate substances, which have a dimension less than 100 nm minimum. At this size, atoms and molecules work differently and provide a variety of surprising and motivating uses. Nanotechnology and nanoscience studies have appeared rapidly in recent years in many product topics. Provides opportunities for materials development. including those intended for medical applications, where conventional techniques can reach their limits. Nanotechnology represents the manufacture, production and use of materials on the atomic, molecular and macromolecular scale, in order to produce new nanometric materials. Engineered nanoparticles (NP) are commercially produced materials that have at least one dimension less than 100 nm[1]. In the medical field, NPs are being used as a new delivery system for drugs, proteins, DNA, and monoclonal antibodies[2]. The main objectives are to construct nanoparticles such as a delivery system to control particle size, surface structures, and the release of pharmaceutical agents for specific site-specific actionof the drug with the correct dose of Therapeutically and regimen dose [3].Nanotechnology has great potential to improve the quality of air, water and soil in the environment. It can improve the detection and detection of contaminants and help in the development of new technologies for remediation. Understanding the dynamic processes of nanoparticle formation and growth (for example, in the combustion system) allows the development of efficient methodologies to minimize the formation of pollutants in the first place and to reduce their emissions. Although nanotechnology has the potential to improve environmental quality, there are concerns that it may also lead to a new class of environmental hazards. These concerns are associated with virtually all new technologies and must be addressed early on. With proper care, careful research, and incorporating findings at an early stage, the safety of nanotechnology can be ensured [4, 5, 6].

Need for developing nanoparticles

The main objectives in the design of nanoparticles such as a delivery system to control particle size, surface structures, and the release of pharmaceutical agents to achieve a specific drug action a reasonable rate and dose[7]. Polymeric nanoparticles provide certain advantages over liposomes. for example, they help increase drug / protein stability and possess useful controlled release properties[8].

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Distribution and biological activity of alkaloids in some Indigenous plants.

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Abstract:
Plants have always been a basis for the normal medicine systems and that they have provided continuous remedies to the mankind for thousands of years. Therapeutic application of plants having anti-tumor, anti-viral, anti-inflammatory, anti-malarial activities. Knowledge of the plants for the preparation of different drugs has been of great significance. Plants are considered as a rich source of wide variety of ingredients which can be used for the event of drug. Alkaloids are the important secondary metabolites that are contain therapeutic properties. On the aim of their biosynthetic precursor and heterocycle system, the compounds areclassified into different categories which include indole, piperidine, tropane, purine, pyrrolizidine, imidazole, quinolozidine, isoquinoline and pyrrolidine alkaloids. Alkaloids are able to prohibit the onset of various degenerative diseases by radical scavenging or binding with the oxidative reaction catalyst. Several studies are wiped out evaluation of alkaloids from various plants for its wide selection of pharmaceutical activities. This review provides an summary of alkaloid drugs that are derived from the numerous plants and potential against various diseases.

Keywords: alkaloid drugs, distribution and biological activity, plant alkaloids, therapeutic compounds

Introduction:
Alkaloids are a category of basic, present organic compounds that contain a minimum of one nitrogen atom. This group also aving several connected compounds with neutral and even weakly acidic properties. Some synthetic compounds of comparable structure also be termed alkaloids. including to carbon, hydrogen and nitrogen, alkaloids can also carry oxygen, sulfur and, more rarely, other elements like chlorine, bromine, and phosphorus. Alkaloids are produced by an outsized sort of organisms including bacteria, fungi, plants, and animals.They are often purified from crude extracts of those organisms by acid-base extraction, or solvent extractions followed by silica-gel chromatography . Alkaloids have a superior range of pharmacological activities of antimalarial (e.g. quinine), antiasthma (e.g. ephedrine), anticancer (e.g. homoharringtonine), cholinomimetic (e.g. galantamine),vasodilatory (e.g. vincamine), antiarrhythmic (e.g. quinidine), analgesic (e.g. morphine), antibacterial (e.g. chelerythrine), and antihyperglycemic activities (e.g. piperine).

There many have found use in traditional or modern medicine, or as starting points for drug discovery. Other alkaloids possess psychotropic (e.g. psilocin) and stimulant activities (e.g. cocaine, caffeine, nicotine, theobromine), and are to take advantage in entheogenic rituals or as recreational drugs. Alkaloids are often toxic too (e.g. atropine, tubocurarine). Although alkaloids act on an assortmrnt of metabolic systems in humans and other animals, they almost uniformly evoke a bitter taste.

Generally, alkaloids are excessively toxic though they have a marked therapeutic effect in small quantities. They ensure plant survival against micro-organisms insects and herbivores, and also against other plants by means of allelopathically active chemicals. That is why they are used for medicinal purpose. They are optically active substances, bitter in taste, colorless, crystalline or liquid at room temperature.The alkaloid quinine for instance is one among the bitterest tasting substances known and is already significantly bitter at a molarity of 1 × 10–5Pure, Segregatede plant alkaloids and their synthetic derivates are used as basic medicinal agents all over the world for their analgesic, spasmolytic, and bactericidal effects . In humans, most of the alkaloids affects the

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