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REVIEW ARTICLE

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Swami Gaurav, Nagpal Navneet, Rahar Sandeep, Singh Preeti, Singla Shwali, Nagpal Manisha A and Kapoor Reni.....177

ABSTRACT:

Carissa carandas L. is known as Bengal Currant or Christ's thorn, Karanda, *kerenda* (Malay), *karaunda* (India), *nam phrom* or *namdaeng* (Thailand), *caramba* (Philippines), *kalakai* (Tamil), and *ci huang guo* (Chinese). As per ethnopharmacology, *Carissa carandas* fruits are eaten to treat liver dysfunction, to break fever, to counteract the putrefaction of blood and roots are use in promote digestion. A remarkable advance in the pharmacology of *Carissa* species (*Carissa carandas*) show the antibacterial, scavengers of free radicals and inhibitors of xanthine oxidase, antioxidant, cardiotonic and blood pressure, anti convulsant activity, hepatoprotective, analgesic and anti-inflammatory activity. According to herbal and ayurveda system *Carissa carandas* also useful in the hypoglycemic conditions.

KEYWORDS: *Carissa carandas*, Hypoglycemic, Hepatoprotective, Blood pressure.

Bacopa (Brahmi)-Open the Gate of Brahma-I

Kishu Tripathi and T Siva Kumar.....181

ABSTRACT:

Bacopa also called as Brahmi is used in anxiety and depression, epilepsy, bronchitis and asthma, gastrointestinal disorders, cardiovascular effects, hyperthyroidism, protection from drug toxicity, Cancer, antioxidant activity, hepatoprotective activity, attention-deficit disorder, revitalizing intellectual functions in children, reduction of pain.

KEYWORDS: Brahmi, *Bacopa*

Screening Antibacterial Activity of Various Extracts of *Lawsonia inermis*.

P Arun, KG Purushotham, Johnsy Jayarani, Vasantha Kumari and D Chamundeeswari.....185

ABSTRACT:

Lawsonia inermis known as Henna is a woody and flowering plant found in North Africa and South west Asia. Its leaves extensively in the treatment of urinary tract infection in Siddha system of medicine. *Lawsonia inermis* was subjected to antibacterial analysis. A battery of assays were performed on different extracts of *Lawsonia inermis* (Henna) for antibacterial activities. Antibacterial effects of n-hexane, chloroform and methanol extracts of the leaves extract of *Lawsonia inermis* exhibited various degree of inhibition activity. It was observed that leaves extract were promising against gram positive and gram negative bacteria viz. *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Escherichia coli* and *Proteus mirabilis*. This study showed that *Lawsonia inermis* could inhibit certain bacteria.

KEYWORDS: Anti-bacterial activity, *Lawsonia inermis*, Henna and Medicinal plants.

Bacopa (Brahmi)-Open the Gate of Brahma-II

Kishu Tripathi and T Siva Kumar.....188

ABSTRACT:

Bacopa also called as Brahmi is used in anxiety and depression, epilepsy, bronchitis and asthma, gastrointestinal disorders, cardiovascular effects, hyperthyroidism, protection from drug toxicity, Cancer, antioxidant activity, hepatoprotective activity, attention-deficit disorder, revitalizing intellectual functions in children, reduction of pain.

KEYWORDS: Brahmi, *Bacopa*

RESEARCH ARTICLE

Anti-Inflammatory and Anti-Nociceptive Activity of *Pandanus tectorius* Parkinson

Vikas Gupta, Junaaid Niazi, Jatinderjot Kaur Kehal and Parveen Bansal.....193

ABSTRACT:

Pandanus tectorius (*Pandanaceae*) was being used ethnomedically for treatment of diseases like asthma, cough, and bronchitis and locally as analgesic. Chemical constituents of leaves included triterpene, squalene and phytosterols. The study was aimed to evaluate both anti-inflammatory and anti nociceptive activity of the ethanolic extract of fresh leaves of *Pandanus tectorius* (PTEE) in rats using the carrageenan-induced paw oedema method in rats and tail-flick model in mice at various dose levels. Ceiling effect of the extract was observed at 300 mg/kg in carrageenan test. The effect was equivalent to phenylbutazone (80 mg/kg, p.o.) at 300 mg/kg. Effectiveness of extract in the late phase of inflammation suggests the inhibition of prostaglandins and leukotrienes release. The extract produced marked analgesic activity at 300 mg/kg and the effect was comparable to that of standard drug, Ibuprofen (100 mg/kg, p.o). Preliminary phytochemical screening revealed the presence of tannins, sterols, triterpenes and flavanoids in extract. In conclusion, this study has established the anti-inflammatory activity and analgesic activity of *P. tectorius* and, thus, justifies the ethnic uses of the plant.

KEYWORDS: *Pandanus*, *Pandanaceae*, Anti-inflammatory, Antinociceptive.

Evaluation of *In Vitro* Anti-Oxidant Activity of *Premna integrifolia* Linn. Mant. Root

RH Gokani, SK Lahiri, DD Santani and MB Shah.....196

ABSTRACT:

Root of *Premna integrifolia* known under common name Arni/Agnimantha which is an important constituent of well known formulation, Dashmularista used for various ailments. In the present study methanolic extract of the roots was evaluated for its *in-vitro* antioxidant activity using the anti radical, superoxide scavenging, anti lipid peroxidation, hydroxyl radical scavenging and nitric oxide scavenging, assays. The extract showed significant anti-oxidant activity. The study scientifically demonstrated the use of *P. integrifolia* as a potential source of natural antioxidant.

KEYWORDS: *P. integrifolia*, *Verbanaceae*, Anti-oxidant activity

Cucurbitacin Glycosides from the fruits of *Citrullus colocynthis* (L).

N. Sampath Kumar and G. Madhurambal.....200

ABSTRACT:

Citrullus colocynthis (L.) Schrad. (*Cucurbitaceae*) is an Iranian medicinal plant that has traditionally been used as an abortifacient and to treat constipation, oedema, bacterial infections, cancer and diabetes. As part of our ongoing studies on Iranian medicinal plants, thorough phytochemical investigation was carried out on this plant.

Solvent extraction method was employed to isolate compounds from the ethyl acetate and ethyl methyl ketone fractions of the hydro-ethanolic (90%) extract of the fruits of the locally grown *C. colocynthis*. Structures of the isolated compounds were elucidated by spectroscopic means. Two cucurbitacin glucosides, 2-O-β-D-glucopyranosylcucurbitacin I and 2-O-β-D-glucopyranosylcucurbitacin L were isolated and identified.

KEYWORDS: *Citrullus colocynthis*, Cucurbitaceae, Cucurbitacin I, Cucurbitacin L

Evaluation of Wound Healing and Anti-Oxidant Property of Seed Oil of *Morinda citrifolia* L (Noni) In Wistar Rats

Khuntia Tapas Kumar, Panda DS and Khuntia S203

ABSTRACT:

Wound healing is a complex pathway that is energy dependent. Non-healing wounds frequently require the use of physical agents to achieve healing. Wound healing disorders present a serious clinical problem and are likely to increase since they are associated with disease such as diabetes, hypertension and obesity. Additionally, increasing life expectancies will cause more people to face such disorders and further aggravate problem thus several animal models have been established to serve as an experimental basis to determine molecular and cellular mechanisms underlying and controlling an undisturbed healing process. *Morinda citrifolia* L. (Noni) (Rubiaceae) has been used in folk remedies by Polynesians, Indians for over 2000 years, and is reported to have a broad range of therapeutic effects, including antibacterial, antiviral, antifungal, antitumor, antihelmintic, analgesic, hypotensive, anti-inflammatory, and immune enhancing effects.

This paper describes a common biochemical pathway that helps to understand, at a molecular level, how the transfer of energy to a wound can result in positive results. The mechanism of action for seed oil of *Morinda citrifolia* L (Noni) is reviewed along with biochemical estimations. Based on our study we conclude that test compound is showing potent anti-oxidant and wound healing activity when compared with positive control i.e. Allazyme and the biochemical estimations also favoured to us in this case.

KEYWORDS: Wound healing, *Morinda citrifolia* L (Noni), antifungal, antitumor, analgesic, hypotensive, anti-inflammatory, anti-oxidant

Evaluation of Suspending Properties of Mucilage of *Linum usitatissimum* Linn. Seeds

CD Khadse, RB Kakde, VK Deshmukh and DS Mohale.....208

ABSTRACT:

The purpose of this study is to search for a natural excipient that can be used as alternative in the formulation of pharmaceutical suspensions. Present study was carried out to evaluate suspending properties of mucilage of seeds *Linum usitatissimum* Lin. with those of tragacanth and Acacia at concentration range of 1.0–4.0% w/v in calcium carbonate suspension. Evaluation parameters like sedimentation profile, redispersibility, and pH were compared with calcium carbonate (2.0%w/v) suspension prepared by using acacia and tragacanth gum as standard suspending agent. Suspension prepared with linseed mucilage was found a superior suspending agent than acacia and comparable with tragacanth. Linseed mucilage can be used as an effective alternative in the formulation of pharmaceutical suspensions.

KEYWORDS: suspending agent, *Linum usitatissimum*, flax seed, mucilage

Anti-inflammatory and wound healing activity of *Eupatorium odoratum* Linn. Leaves

Prabhudutta Panda, Arpita Ghosh and Maitrayee Panda.....211

ABSTRACT:

The present study was carried out to elucidate the potential of methanol extract of *Eupatorium odoratum* L (Family- *Asteraceae*) leaves on anti-inflammatory and wound healing effects using various animal models. The

dried, powdered leaves of *E. odoratum* were extracted successively with petroleum ether (60–80°C), chloroform and methanol in Soxhlet apparatus. The methanol extract (yield 23.6 % w/w with respect to dry powdered plant material) was selected for all experimental procedure. Anti-inflammatory effect were investigated by employing the carrageenan induced rat paw edema test in adult Wistar albino rats and the wound healing activity in Swiss Albino rats. Results were revealed that the methanol extract was found significant anti-inflammatory effect ($P < 0.001$) at the dose levels of 100, 200 and 400 mg/kg, orally in mice. Ointment and gel was prepared from the methanol extract of *E. odoratum* and tested for pH, viscosity, spreadability, drug contents uniformity. The formulations were evaluated for its acute skin irritancy, wound healing activity in Swiss Albino rats. The formulations did not produce any skin irritation for about a week when applied over the skin. The formulations and the normal methanol extracts of *E. odoratum* showed significant ($P < 0.001$) wound healing activity by excision wound model and comparable with that of the reference standards and control bases. The measurement of the wound areas were taken on 3rd, 6th, 9th, 12th, 15th and 18th days and the percentages of wound closures were calculated. It concludes that, methanol extract possessed remarkable anti-inflammatory and wound healing activity effect on animal models.

KEYWORDS: *Eupatorium odoratum* leaves, methanol extract, Anti-inflammatory, wound healing

Visible Spectrophotometric Determination of Ferrum Phosphoricum in Homeopathic Formulations

Syed Azhar Nizami, Ashok Kumar D and SC Marihal.....217

ABSTRACT:

The present study deals with the determination of Ferrum Phosphoricum and Ferrum metal in some Homeopathic formulations. The method is based on Fe^{3+} reduce to Fe^{2+} with hydroxyl ammonium chloride which react with the 1-10 phenanthroline in the pH range 3-5 to form an orange-red colour complex which shows the maximum absorbance at 518 nm. Beer's law is obeyed in the concentration range of 0.5-3mg/ml. Results of the analysis were validated statistically and by recovery studies. The Percentage label claim and Percentage recoveries estimated were close to 100% with low value of standard deviation and Percentage coefficient of variation.

KEYWORDS: Ferrum Phosphoricum, Spectrophotometry, Fe^{2+} 1-10 phenanthroline complex.

Pharmacognostical and Preliminary Phytochemical Screening of *Erythrina indica* Linn.

VI Zalavadiya, VK Shah, NR Sheth and Sumit Chakraborty.....220

ABSTRACT:

Erythrina indica Linn (Leguminosae), a genus of trees or shrubs, is widely distributed in tropical and subtropical regions of India. The barks are used traditionally as astringent, febrifuge and in leprosy and fever. Scientifically reported activities of *Erythrina indica* are Analgesic, Antibacterial activity, Anthelmintic Activity, Hypoglycaemic Activity and Diuretic activity. The present study involves Pharmacognosy and preliminary phytochemical investigations of the stem bark of *Erythrina indica*. This study consisted of the morphological and microscopical study of the plant; the phytochemical screening and testing for alkaloids, glycosides, tannins, steroids and flavonoids; TLC study and HPTLC fingerprinting. The parameters from the above were recorded with an objective of drawing an attention on the plant as well as a reference for further scientific investigations.

KEYWORDS: *Erythrina indica*, Flavonoids, Microscopical, Pharmacognosy.

Pharmacognostical Evaluation of *Indigofera glandulifera* Stem

R Vijaya Bharathi, C Vamsadhara, G Sumathi and K Rajendran.....225

ABSTRACT:

This article presents an identity based pharmacognostical study of the stem of the crude drug *Indigofera glandulifera* Linn. (Papilionaceae). Morphoanatomy of the stem was studied using light and confocal microscopy, World Health Organization guidelines on quality control methods for medicinal plant materials. The

physico-chemical, morphological, histological parameters presented in this paper may be proposed as parameters to establish the authenticity of *I. glandulifera* and can possibly help to differentiate the drug from its other species

KEYWORDS: Pharmacognostical, *Indigofera glandulifera*, stem, Papilionaceae

Anti Microbial Studies on *Spirulina platensis*

VR Ravikumar, T Sudha and PV Hemalatha.....228

ABSTRACT:

Spirulina plantensis (fam: cyanophyceae) is a blue green fresh water algae. It is a simple, single- celled alga that thrives in warm alkaline fresh water. It is helical in shape and hence the name *spirulina*. *Spirulina* is being developed as the food of the future due to its very high nutritional value. The extracts were then subjected to antibacterial studies using Muller Minton agar and fresh strains of *E.coli* & *Staphylococcus aureus* and Ciprofloxacin as the standard drug. Antifungal studies were perform using potato dextrose agar medium and fresh strain of *Aspergillus niger* and Griseofulvin, as the standard drug cup diffusion method was followed for both the studies. It was found that when compared with standards and among the extracts, the ethanol extract showed a significant antibacterial & antifungal activity.

KEYWORDS: *E.coli*, *Staphylococcus aureus*, *Aspergillus niger*, Griseofulvin, *Spirulina platensis*, Ciprofloxacin, Anti microbial.

Evaluation of Anthelmintic Activity of the Wood of *Soymida febrifuga*. (Meliaceae)

SA Gangurde, PH Jadhav, SM Dange, SB Datir, NP Jain and SC Pal.....231

ABSTRACT:

Soymida febrifuga belonging to family *meliaceae* is commonly called mans Rohini in Marathi and traditionally reported for treatment of various diseases. Different parts of *S. febrifuga* are reported in Ayurvedic medicine for treatment of variety of ailments like dysentery, cough, asthma and antiperiodic. Efforts will be made to find out active constituents and their pharmacological action. Traditionally plant was known to have activity against worms and have been used in the treatment of dysentery caused by worms. Thus the present study aims to evaluate the traditional anthelmintic properties of the plant. Aqueous extract and methanol extract of the wood of *S. febrifuga* were screened for anthelmintic activity. Results showed that methanol extract of the wood of *S. febrifuga* is having potent anthelmintic activity. Thus we can conclude that, the anthelmintic property of the plant is due to the polar phytoconstituents present in the wood

KEYWORDS: *Soymida febrifuga*, Anthelmintic activity, *Pherotima posthuma*

In Vitro Anthelmintic Activity of Various Herbal Plants Extracts Against *Pheritima posthuma*

Priyanka Patil, JK Patel, PS Kulkarni, MU Patel, CJ Bhavsar and Patel JA.....234

ABSTRACT:

Aqueous extracts of leaves of *Cissus quadrangularis*, *Eclipta alba*, *Chrozophora rotleri* and flowers of *Luffa acutangula* were investigated for anthelmintic property against *Pheritima posthuma* (Indian Earth worm). Different concentrations (25, 50 and 100 mg / ml) of each plants aqueous extracts were studied in a bioassay, which involved the determination of time of paralysis and time of death of the worms. Piperazine citrate (10 mg/ml) was used as a standard reference drug. All the aqueous extracts of the three plants exhibited significantly anthelmintic activity against *Pheritima Posthuma*, but flowers of *Luffa Acutangula* demonstrated the best anthelmintic activity in both the parameters.

KEYWORDS: Aqueous extracts, *Cissus Quadrangularis*, *Eclipta alba*, *Chrozophora rotleri*, *Luffa acutangula*, anthelmintic and *Pheritima posthuma*

ABSTRACT:

In the present study, the entire plant of *Tephrosia procumbens* Buch-Ham commonly known as Vempalli, Indigo sauvage (Fam-Fabaceae/ Leguminosae) was investigated for the phytochemical screening and antimicrobial property against certain microorganisms using disc diffusion method. The entire plant of *Tephrosia procumbens* were collected, shade dried at room temperature, pulverized and extracted with 95% ethanol in soxhlet extractor to get total ethanolic extract which is further fractionated with the solvents of different polarities. Total aqueous extract was also obtained by macerating the shade dried material with 3% of chloroform water I.P. All the extracts and fractions were subjected for Preliminary Phytochemical screening, which has shown the presence of Carbohydrates, Steroids and Flavonoids and evaluation of antimicrobial property by using disc diffusion method on various pathogenic forms of microorganisms including gram positive, gram negative and fungi. It was found that total ethanolic and total aqueous extract of entire plant of *Tephrosia procumbens* significantly inhibit the growth of microorganisms as compared to standard drugs Gentamycin and streptomycin (Hi-Media Lab. Mumbai).

KEYWORDS: *Tephrosia procumbens*, Antimicrobial activity, .

A Pharmacognostical Study on *Albizzia lebbek* bark

Shah UD, Shah MB and Saluja AK.....241

ABSTRACT:

Fresh stem bark of *Albizzia lebbek* was studied for macro and microscopical characters. Betulinic acid was isolated and identified by M. P., co- chromatography with reference standard and IR spectral characteristics. HPTLC method was developed for quantification of betulinic acid using precoated silica gel plates as a stationary phase, Toluene: Acetone: Acetic acid (100:1:0.1) as a mobile phase and anisaldehyde sulphuric acid as a spray reagent. The bark is rough as longitudinal fissures and transverse cracks are present. TS of bark shows rhytidoma as a major portion followed by stone cell bands and secondary phloem with groups of phloem fibres, with starch and prisms of calcium oxalate being found in all the tissues. Saponins, tannins, triterpenoids and flavanoids were found be the major components of the bark. HPTLC method was developed for quantification of betulinic acid by scanning the plates at 523nm. The quality parameters and HPTLC method developed would serve as useful tools in standardization of *Albizzia lebbek*.

KEYWORDS: *Albizzia lebbek*, HPTLC, quality parameters, betulinic acid

Comparative Antimicrobial Studies of Methanolic Extract of *Muntingia calabura*, *Basella alba* and *Basella rubra* Leaves.

KB Premakumari, Ayesha Siddiqua, Shanaz Banu, J Josephine, Leno Jenita and Bincy Raj.....246

ABSTRACT:

In vitro antimicrobial activity of methanolic extract of *Muntingia calabura*, *Basella alba* and *Basella rubra* leaves was investigated. The extracts exhibited marked antimicrobial activity against gram positive and gram negative bacteria and fungi. *Muntingia calabura* showed higher inhibitory effect against the pathogens like *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli*. *Basella rubra* showed mild inhibitory activity against *Staphylococcus aureus*, *Basella alba* showed good inhibitory activity against *Aspergillus niger*. A Comparative study shows maximum antimicrobial activity in *Muntingia calabura* extract.

KEYWORDS: *Muntingia calabura*, *Basella alba* and *Basella rubra* and antimicrobial activity.

ABSTRACT:

The methanolic extract of the leaves of *Lagerstroemia parviflora* (Roxb) was tested for its Minimum Inhibitory Concentration (MIC) against different fungi belonging to *Candida*, *Aspergillus* and *Penicillium* species. Further, zones of inhibition produced by the crude extract against the fungal strains were measured and compared with those produced by standard antifungal agent Griseofulvin. The extract was proved that it was highly toxic against *Candida albicans* ATCC10231, *Aspergillus thiogentalis* MTCC 804, *Penicillium notatum* ATCC 6275, *Penicillium funiculosum* NCTC 287, and *Penicillium citrinum* MTCC 1256. The extract showed less toxicity against *Aspergillus niger* (ATCC 6275). The extract was found to be fungistatic in its action.

KEYWORDS: *Lagerstroemia parviflora*, antifungal, MIC, leaves

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