Review on Harbal Formulation by Using Lantana Camara on Anti-Inflammatory Activity

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***Abstract*—Lantana camara commonly known as lantana, is a tropical flowering plant belong in the family vernbenaceae. Lantana camara is well known to cure several diseases and used in various folk medicinal preparations. Different part of plants is used in the treatment of cold, headache, chicken pox, eye injuries, whooping cough, asthma, bronchitis and arterial hypertension. Among the large number of herbal drugs existing in India, very few have been studied systematically so far Lantana camara is an evergreen plant found Throughout india.The plant has been found to have Antibacterial activity, anti-cancer activity, anti-fungal activity, anti-helmentic. Lantana camara is used in many traditional medical formulations and is widely known for curing a number of illnesses. Over the decades, scientists and researchers from all over a world have thoroughly examined the chemical makeup of the entire. lantana camara plant as well as its biological pharmacological properties. These investigations demonstrated Lantana camara therapeutic potential in contemporary medications and suggested it as a prospective drug discovery.**

***Index Terms*—Medicinal Plant, Phytochemistry, Ethnobotany, Pharmacology, etc.**

I. INTRODUCTION

The Verbenaceae family includes the flowering ornamental shrub Lantana camara Linn. Other names for L. camara include West Indian lantana, Surinam tea plant, wild sage, and Spanish flag. L. camara was most likely brought to India before to the 1800s [1]. L. camara is currently found all over India in areas with well-drained slopes and moderate to high summer rainfall. The majority of varieties prefer rich organic soils, but some or all can live on siliceous sands and soils formed from sandstone as long as they are somewhat deep and other factors, particularly constant rainfall, are met. It is indigenous to tropical areas and comes in dozens of strains and variants with wildly different looks [2]. Raimuniya (Hindi), Chaturangi and Vanacehdi (Sanskrit), Arippu and Unnichedi (Tamil), Aripoov, Poochedi, Konginipoo and Nattachedi (Malayalam), Thirei, Samballei and Nongballei (Manipuri), Tantani and Ghaneri (Marathi), Pulikampa (Telegu), Kakke and Natahu (Kanada). L. camara is bekend onder verskeie name in die Indiese taal. In tradisionele medisyne is L. camara 'n bekende plant, maar onlangse navorsing het getoon dat[3] L. camara kan gebruik word in moderne medisyne. Die doel van hierdie review is om die medisinale activity L. Camara die moontlikhede vir toekomstige navorsing wat bedoel is om nuttige behandelingsmiddels te skep. [4] Lantan se voordele as 'n medisyne. an important source of compounds that are clinically significant are medicinal plants. Medicinale plante is al lank gebruik om verskeie gesondheidsprobleme te behandel. [5] A variety of bioactive molecules is supplied by systemic analysis of these plants for the creation of more recent pharmaceutical products. Die farmakologiese evaluering van verskeie plante wat in verskeie tradisionele medisyne gebruik word, het onlangs toegeneem in belangstelling. [6] In die afgelope paar dekades is 'n groot aantal bekende plants met baie medisinale eienskappe bestudeer met die gebruik van moderne scientific methods. Hierdie plants is geïdentifiseer vir 'n verskeidenheid medisinale eienskappe, soos anticancer, anti- inflammatory, antidiabetic, anthelmintic, antibacterial, antifungal, hepatoprotective, antioxidant, larvicidal, etc.

Fig 1: - Lantana camara (A)Leaves, (B)Flower, (C)Fruits

Taxonomy of Lanatana Camara:

1). Kingdom: Planate
2) Division: Magnoliophyta
3) class: Magnoliopsid
4) ordar: Lamiales
5) family: Verbenaceae
6)Genus: Lantana
7) Species: Lantana Camara Linn.
8)Common name: Shrubvebena [7]

\Charecteristic of lanatana camara:

Characteristics	Description
Native	Tropical region in south America
Synonym	Camara Vulgaris,Lantana Scabrida
Conservation Status	Alien
Distribution	Naturalized in countries is lands between 35N and 35S Latiltudes
Plant Characteristics	Poisonous
Foliage Characteristics	Annules biennials,ground covers,perennials,shrubs
Faliage Colour	Fragrant,evergreen,poisonous
Flower Characteristics	Dark green
	Long lasting,showny,unusual
Flower Colour	Pink,yellow,orange
Tolerances	Drought,heat and humidity, pollusion, slope,wind
Propagation Methods	From herbaceous stem cuttings
Pollinators	Lepidopteran species and thrip

Table No 1. General Characteristics of Lantana Camara

Therapeutic Effect in Different Parts of Plant: varied portions of the Lantana camara plant have varied medicinal uses because of their distinct phytochemical compositions, according to both traditional and contemporary research. Although ripe berries are occasionally eaten, care should be taken because the plant is known to be toxic. [9]

LEAVES: When applied extract from the leaves have been demonstrated to speed up wound contraction and encourage collagen synthesis. [10] Traditionally, it has

also been applied as a poultice to wounds and skin ulcers [11].

Antimicrobial: Leaf extracts have shown antifungal and antibacterial qualities against a variety of microorganisms, such as Escherichia coli and Staphylococcus aureus. Additionally, the leaves' essential oil has antibacterial properties.

Analgesic and anti-inflammatory: Leaf extracts have been shown to have analgesic and anti-inflammatory properties. Rheumatism has historically been treated with infusions. [12]

Anti-ulcerogenic: Studies have indicated that the leaves' extracts may help prevent stomach ulcers brought on by stress and some drugs.

flowers: Antimicrobial: Microbes soon Bacillus subtilise en Escherichia coli is vernietig deur flower extracts.

Chest problems: Flowers are sometimes used in traditional medicine to treat chest problems in children.

Insect killer: Flower extracts have also been used as a mosquito killer

Roots:

Antibacterial: The ethanolic extracts of the roots have antibacterial properties. [13]

Antifungal: Studies het getoon dat crude root extracts fungus soos Cladosporium sphaerospermum bestry.

Rheumatism and malaria: The roots are used to treat rheumatism and malaria in some traditional systems.

Toothaches and stomach problems: The roots are traditionally used for toothaches, and children's stomachaches have been treated with powdered root in milk.

Stem And Shoots: Antibacterial: Acidic shoot extracts have antibacterial properties against Escherichia coli. [14]

Anti-filarial: In animal models, it has been shown that filarial worms are killed or disabled by a crude stem extract.

Antioxidant: Daar is bewyse dat blomme sterk antioksidante het

Medicinal Properties of Lantana Camara [15]:

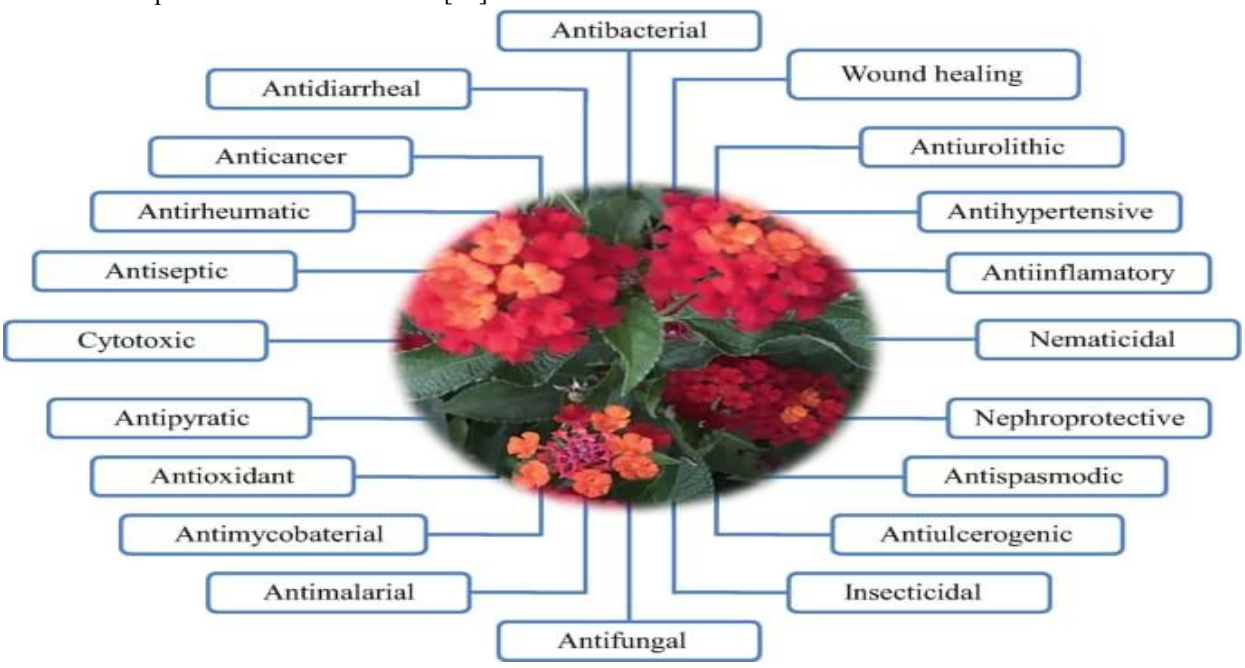

Fig No 1.1 Medicinal Properties on Lantana Camara

Anti-cancer and Antiproliferative acitivity:

Various types of L. camara have antiproliferative and anticanser properties. The antiproliferative properties of L. camara leaves are found in both HEp-2, which causes laryngeal cancer, and NCIH292, which causes lung cancer. The MTT-assay is used to test antiproliferative agents in vitro. Methanol extract from L. camara leaves inhibited NCI-H292 cells (% live cells = 25.8 ±0.19). According to reports, the Vero cell line is cytotoxically affected by L. camara leaves. The

MTT-assay is used to investigate cytotoxicity in vitro. Triton 100 × 1% reduced cell growth 2.5 times more than methanol extract (500 g/ml).

Antioxidant Activity:

activity and 1, 1-The diphenyl-2-picrylhydrazyl (DPPH) radical scavenging experiment was used to demonstrate the antioxidant capacity of L. camara leaves. Antioxidants were abundant in leaf extracts; however, younger leaves were more potent than older or more developed leaves. The ethanolic extract of L. camara has been shown to have antioxidant properties in in vivo investigations. As a result of the extract therapy, the kidneys of urolithic rats showed signs of lipid peroxidation. In vitro experiments were conducted using both DPPH- and NOx-free radical scavenging assays. The extract has strong antioxidant properties in both toetse [16]

Antihyperglycemic activity:-

In streptozotocin-induced diabetic rats known as Wistar albino rats, a methanol extract of L. camara Linn fruits was shown to have antihyperglycemic effects. The extract therapy at doses of 100 and 200 mg/kg body weight reduced serum glucose in streptozotocin-induced diabetic rats in a dose-dependent manner. As a result of using a methanol extract of L. camara leaves that showed antihyperglycemic properties, there were signs of improvement in liver cell regeneration, HbA1c-profiel, and cholesterol levels. characteristics in rats with diabetes caused by alloxan. Oral administration of L. camara leaves with methanol extract reduced the blood glucose level in diabetic alloxan rats to 121.94 mg/dl. Blood glucose was lowered to 121 with lantana camara leaves (400 mg/kg body weight). The dosage in rats with diabetes caused by alloxan was 94 mg/dl.

Anti-inflammatory Activity: The aqueous extract of L. camara exhibits anti-inflammatory properties in albino rats. The treatment (500 mg/kg alcohol) significantly reduces the paw volume in rats with caused by karrageenan paw oedema.

Wound healing:

Ethanol extract from leaf of L. camara has healing properties for wounds in adult male Wister rats. The wound healing activity was significantly improved when the extract was applied on the wound[17]. The importance of extract in healing was confirmed by histological analyses of healed wounds. In 'n ander studie is gevind dat die water uit die leaf of L. camara het 'n vermoë om wonde te genees in rats. The extract was significantly improved in wound contraction (98%), collagen synthesis, and wound volume when it was applied topically on the wound (100 mg/kg per day)[18].

Antimotility activity:

Studies het getoon dat methanol extract from L. camara leaves exhibits antimotility properties in mice. Charcoal meal testing was gebruik in mice om intestinal motility te assesseer. The extract inhibited charcoal transit in normal mice at a dose of 1 g/kg body weight. 125 en 250 mg intraperitoneal toediening[19].

Controlling mosquitos:

It has been demonstrated that methanol and ethanol extracts from L. camara leaves and flowers are efficient against Ae. aegypti and Cx. quinquefasciatus larvae of mosquitoes. Both extracts have strong repellent effects on both kinds of mosquitoes. Nevertheless, extracts were more effective against Ae. aegyptithan than Cx. quinquefasciatus at low concentrations (1 mg/ml). The Aedes aegypti mosquito, Culex quinquefasciatus, the Anopheles culicifacies, the Anopheles fluvialitis, and Anopheles stephensi are among the mosquitoes that can be killed by essential oil extracted from L. camara leaves. LD90 values were 0.10, 0.10, 0.09, 0.09, and 0.10 mg/cm2, whereas LD50 values were 0.06, 0.05, 0.05, and 0.06 mg/cm2 [20].

Antifilarial Activity:

in the L. camara stem's crude extract. The extract and its chloroform fraction killed mature Brugia malayi plants in the mouse model Mastomyscoucha. Antifertility action (toxicity to embryos): In female Wistar rats, a hydroalcoholic extract of L. camara leaves was used to study teratology, fertility, and several aspects of reproductive success. There were no signs of maternal toxicity, but the extract showed signs of embryo toxicity, such as after-implantation loss and the frequency of fetal skeleton abnormalities in mothers that were handled. Effects on red blood cells: Lantana camara aqueous extract was shown to have an impact on RBC shape and osmotic fragility. Hemolysis and RBC morphology increased significantly ($p < 0.05$), according to the findings [21]. changes in the presence of the extract. These Lantana camara effects may be due to some pharmacological properties of the chemical compounds in the aqueous [22].

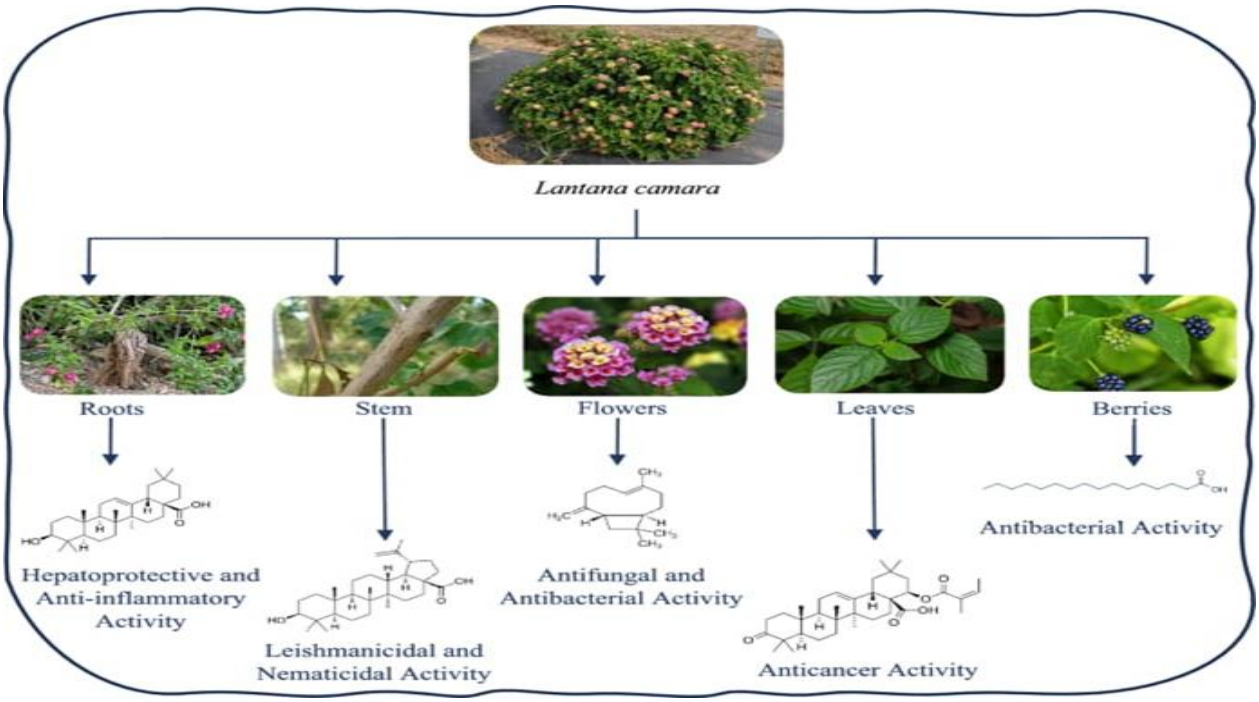

Fig No 1.3 Different Parts of Lantana Camara

Phytochemistry:

L.camara is a medicinal plant, en as gevolg van hierdie eienskappe is al die plante se dele ondersoek vir chemical compounds. Die meeste van die chemicals wat in leaf extracts voorkom, is triterpenoids, alkaloids, flavonoids, tannins, saponins en glycosides. Daar was ook phytochemical studies on the stem and fruit of L.camara, even though the leaves were not present. Daar is gevind dat tannins, saponins, flavonoids en terpenoids uit die stem en fruit gevind is. GC/MS analysis of the fruit in an n-Hexane fraction revealed the following compounds. The plant's root contains the crucial bioactive compound known as "Oleanolic acid", and the method of isolating it has been granted patent. [23] L.camara is a rich source of essential oils, and Lantana oils is available in the market verskaf verdere inligting oor die noodsaaklike olie chemiese bestanddele wat deur verskeie lande aangedui is. As ons die samestelling van essensiële olie in Saudi Arabia vergelyk met dié van ander lande, Dit is belangrik om te noem dat Saudi Arabia se essential oil composition is unusual in comparison to other countries. As getoon is die belangrikste komponente van L.camara essential oils cis-3-hexen-1-ol and 1-hexanol, wat vir die eerste keer gemeld is in Saudi Arabia en het nie in vorige studies gevind word Daarbenewens is β-caryophyllene, ook bekend as die natuurlike bicycliese sesquiterpene, 'n noodsaaklike komponent in elke samestelling van essensiële olies wat tot dusver genoem is. As gevolg hiervan is dit voorgestel dat β-caryophyllene ondersoek moet word. Dit kan as 'n effektiewe merker vir die essensiële olies van L.camara gebruik word.

Ethnopharmacology:

Lantana camara L. is a medicinal plant that has been used to treat a variety of diseases around the world. [24] Leaves can be boiled and made into tea, and the decoction of it is used to treat coughs, tetanus, malaria, and the lotion made from the leaves can be used to heal wounds. In Ghana, the whole plant infusion is used to treat bronchitis, and roots powder is mixed with milk to treat stomach pain. Lancamarone, 'n belangrike steroid afgelei van die leaves van L.camara, het kardiotonic eienskappe, volgens 'n vorige verslag . Its leaves is traditionally used as a remedy for stomach pains and as an insecticide.

TOXICITY:

Sheep, cattle, goats, horses, rodents, and other animals were poisoned by L. camara in high doses.[25]The plant's active ingredients lantadene A, B, D, and icterogenic acid showed their toxicity. Liver enlargement, kidney swelling, fotosensitization,

jaundice, 'n gebrek aan eetlus, en soms dood is poisoning simptome by L. camara s howed nega. The case study of a young Sirohi goat poisoned tive effects including anorexia, depression, eyelid enlargement, epidermis sloughing, and skin itching[26]. In order to treat the purgative toxicity, a liver tonic electrolyte, parental vitamin B complex, an extract-based antihistaminic, and oral activated charcoal were given. as gevolg van L. Camara is baie giftig, so dit is net vir dinge soos sheep, goats, cattle, pigs, en horses om dit te eet. Daar is geen bewyse dat dit skadelik is vir mense nie. In certain countries, people eat the plant's ripe fruit. Daar is 'n potensiaal

II. FUTURE PROSPECT

New Drug Discovery: Extensive research has shown Lantana extracts have anti-inflammatory, antibacterial, antifungal, and anticancer abilities. Refinering extraction processes and isolation of spesifieke compounds in order to create new medicinal products will probably be the focus of future research. and
Antiinflammatory and neurological treatement : Leaf extracts kan help met neuroinflammation en memory deficits, volgens studies. This opens the door for future studies on possible cures for Alzheimer's other neurological illness.[27]
Nanoparticle synthesis: Die plant is 'n abundant en ekonomiese bron van nanoparticles, wat dit 'n belangrike onderwerp vir navorsing oor sustainable nanotechnology maak.
Multi-funksionele gebruike: Die gebruik van these nanoparticles in toepassings soos photocatalysis, sensors en as catalysts is een van die toekomstige terreine van navorsing

Sustainable furniture and handicrafts: Lantana stems, a lignocellulosic material that lasts for a long time, can be used to make furniture, wickerwork, and other useful items. In the future, the expansion of the sustainable harvesting and processing of this biomass could lead to new opportunities for employment in rural communities. Bio-energie en biofuels: Lantana, 'n plant wat vinnig groei en baie produseer, kan gebruik word om biomass in biogas, bioethanol, en fuelwood te omskep, wat 'n renewable energiebron bied.

III. CONCLUSION

Lantana camara is one of the notorious weeds causing dramatic and apparently irreversible degradation of natural communities in India. There is a high increase in demand for herbal drugs nowadays. Plants are famous for possessing many chemical moieties with a lot of pharmacological properties. Many powerful and efficient drugs have been isolated from medicinal plants for treating dreadful diseases. Ethnomedical and scientific reports about the medicinal properties of Lantana camara represent it as a valuable plant and establish it as a candidate for future drug development.

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