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Review on; Ethnopharmacological Report of *Lantana camara* (Linn.)

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ABSTRACT

The *Lantana camara* (Linn.) Plant of the family "Verbenaceae" is reported to have good medicinal properties and high therapeutic potential due to its great functions due to its unique chemical composition in the traditional medicinal system. It is also famous for its ornamental garden plant with around 150 ancient species that are widely used in traditional medicine around the world. Lantana is found in the Tropics and tropical areas of the Americas and elsewhere in Africa and Asia. Knowledge of traditional medicine and medicinal plants and their study of the principles of chemical science can lead to the discovery of new and cheaper medicines. *Lantana camara* is well-known for its medicinal properties and for its various medicinal properties. This plant is best known as the red sage or wild plant because of its very high variety of conditions even under adverse environmental conditions. Lantana is known for having a sexual and asexual production system. These studies have established the therapeutic potential of *Lantana camara* in modern medicine as well as the potential victim to drug discovery. This review provides a summary of *L. camara's* ethnobotany, phytochemistry, pharmacology and toxicology.

The current review aims to document morphology, dissemination, phytochemistry and *L. Camara* and its future hope for further scientific research to develop effective therapeutic combinations.

Keywords: *Lantana camara*, Ornamental plant, Phytochemistry, Ethanopharmacological reports.

INTRODUCTION

According to the WHO, 80% of rural people in developing countries rely on traditional medicine to meet their basic health care needs (Bannerman *et al*., 1993). Verification and standardization are the first steps in considering the basics of herbal medicine in any medical system (Ahmad *et al.*, 2009).

Medicinal plants are an important source of chemically important chemicals. From ancient times the medicinal plants have been used to treat various ailments. Systematic analysis of these plants provides various bioactive molecules in the formulation of new pharmaceutical products.

Pharmacognosy is strongly concerned with the stabilization, validation and study of natural remedies. He is very involved with the combined camps, viz. Phytochemical and toxicological testing of natural products. This part of research in pharmacognosy is carried out on the identification of antagonistic plant species, validation of traditional plants

commonly used with morphological, histological, physico-chemical and toxicological parameters, in particular to measure heavy metals and radiobiological impurities. in plants, determined by an authorized source. The importance of pharmacognosy has become increasingly evident in recent times (Dinesh, 2007).

The genus Lantana (family: Verbenaceae) includes about 150 species of perennial flowering plants native to the tropical United States, Africa and the Australian and Pacific regions. This species contains plants and trees. The genus Lantana belongs to the family "Verbenaceae" given by "Linnaeus" in 1753 (Munir, 1996). The Lantana variety has great medicinal properties due to the presence of natural ingredients. Much of its activity is due to bioactive chemicals such as monoterpenes, triterpenes, terpenoids, phenylpropanoids, flavones, isoflavones, flavonoids, coumarins, steroids, glycosides and alkaloids present in the Lantana variety (Hussain *et al*., 2011; Ghisalbert, 2000).

PLANT PROFILE

Plant - *Lantana camara*

Table 1: Plant Taxonomy (Raju, 2003)

Kingdom	Plantae
Subkingdom	Tricheobionta
Superdivision	Spermatophyte
Division	Magnoliophyta
Class	Magnoliopsida
Subclass	Asteridae
Order	Lamiales
Family	Lamiaceae
Genus	*Lantana*
Species	*Camara*
Botanical Name	*Lantana camara* Linn.

Table 2: Vernacular Name (Begun *et al.*, 1995; The Wealth of India, 1998).

Common name	Shurb verbenas or *lantanas*
Hindi	Ghaneri
English	lantana, red sage, shurb verbena, white sage, yellow sage.
Madhya Pradesh	Raimuniya
Malayalam	Arippu
Tamil	Unnichedi
Marathi	Chadurang, Ghaneri

Part Used as Drug - Leaves, Flowers, Seeds, Fruits.

Description

L. camara is a strong, standing or conquering tree, with a triangular stem. It grows well up to 1-3m tall, can spread well up to 2.5m. The leaves are ovate, acute or subacute, serrated crenate, rough in the upper part and its entombus on the sides. They are green, 3 to 8 cm long and 3 to 6 cm long. A small flower in clusters. It is said that they are usually orange, from white to red in various colors and often change color over the years. The flowers are yellowish on the axillary head almost all year round. The calyx is small, the corolla-shaped tube is small, the tip is 6 to 7 mm long and examined on irregular lobes. The inflorescences are found in pairs on the axils of different leaves. Together, the shape of the dome is 2 to 3 cm long and contains 20 to 40 sesame flowers. The roots are very strong and give new shoots even after repeated cuts.

Morphological Characters of *L. camara*

***Leaves:* -** Leaves are opposite, ovate or oblong ovate, crenate-dentate.

***Flower:* -** Flowers are small mainly yellow or orange in colour. Flowers are in axillary heads and sometimes colour varying white to orange.

***Fruit:* -** Fruits are drupaceous, greenish black.

***Seed:* -** Seeds are green in colour when unripe and purplish-black in colour when ripe.

Geographical Source: - The geographical sources of genus *Lantana* is perennial flowering plants which is native to the tropical regions of the America, Africa, and existing as an imported plant in various areas mainly in the Australian-Pacific region. This genus includes both herb and shurbs growing to 1.5 to 3.5 m tall (Begun *et al*., 1995). Throughout India, tropical regions of the America, Africa and Australia (Kaserali *et al.*, 2004). The habitat parameters (Neena *et al*., 2013)

Table 3: Habitat parameters

S.No.	Habitat parameters	Requirements
1	Light Range	Sun to full Sun
2	pH Range	4.5 - 8.5
3	Temperature	Intolerant of frequent or prolonged freezing
4	Annual Rainfall Range	1000 – 4000 mm
5	Soil Range	Mostly sandy to clay loam
6	Water Range	Semi-Arid to Normal
7	Altitude	Less than 2000 m above sea level
8	Light conditions	Prefers unshaded habitats, can tolerate some shade

Cultivation

Climate **-** Lantana grows under various conditions of climate. It thrives in moist areas of high rainfall exceeding 200 inch in dry localities and 30 inch in rainfall/annum.

Soil **-** Lantana grows in rich as well as poor soils including gravel and laterite type of soil.

Altitude **-** Lantana grown in low lying areas and on hills upto 1800 m.

Propagation method **-** It propagates readily from stumps or cutting and from seeds which are disseminated by birds through dropping method. It regenerates quickly after cutting, trampling or burning (The Wealth of India, 1998).

Post-Harvest Technology

The best time to harvest a lantana is very early in the morning. Harvesting in hot weather causes a decrease in Lantana essential oil. The first harvest was reported to offer a better yield of essential oils than at other times of the day. Fresh and dry Lantana leaves have shown great conflict. The morning Lantana plant showed more cooling damage than the afternoon crop. This effect was seen only in summer but not in winter. The fresh leaves of Lantana's essential oil show a strange and sophisticated character compared to the dried leaves of Lantana. Temperature and harvest time are important factors affecting the performance of Lantana essential oils. The production of different essential oils is evident when Lantana is harvested at different times and temperatures. Increasing the temperature can reduce the production of Lantana essential oil. In addition, essential oil production was affected during the harvest in one day. Flexible components especially of essential oils are strongly affected by temperatures. The trade in cuttings involves a wide variety of varieties, so the damage that occurs during shipping is manifested by a variety of symptoms, including yellow, dull, and dark leaves. Preservation at low temperatures causes discoloration and subsequent decay of the scissors. Cutting Lantana harvested mainly in the morning was used for the production of essential oils. The cut pieces of lantana were packed in bags with thick polyethylene and the bags were kept in cardboard boxes that were not lined with air-bubble polyethylene sheets (Friedman, 2006). Lantana leaves can be stored for up to one year, if stored in sealed containers away from heat and light sources. Freezing is another preferred method used to keep lantana leaves for a long time. But sometimes the darkness happens. It has also been reported that lantana leaves can be stored in the refrigerator. Bacterial growth at the ends of the lantana leaves is another problem. They undermine the natural taste of lantana green leaves. Therefore, a high level of safety must be ensured in the acceptance, management, processing and storage of products.

Processing

Lantana, like other plants, is used in various applications in different ways. In addition to fresh leaves and other parts of the Lantana plant, like flowers and roots, weeds also can be wont to extract essential oils. The leaves of the plants can be stored or frozen, with no oil, for continuous use over their shelf life. The most common method used for Lantana preservation is salt preservation. the Lantana plant should be placed on paper as the sun changes the pkant structures and its chemical composition. Vaporization / hydrodistillation is a common method used to extract oil from various parts of lanthanum. Planting material was placed on alembic. Steam heat is actually the ability to extract essential oils from plant blood cells. The plant may explode and the volatile components of essential oil evaporate.

Essential oils, or smoke, pass through a cold-water pipe. Essential oils are also liquids. At this point, the essential oil separates from the water and floats to the surface because of its low volume. Lantana essential oil contains many variables. Therefore, the essential oil should be stored in a dark bottle for scale production. The temperature should be below 50ºC at the end of Lantana's essential oil. Direct contact with the sun should be avoided due to the drying of the Lantana leaves. The leaves have lost a lot of essential oil and can destroy

many flexible compounds. These dried leaves are powdered, measured, and stored in the shade at room temperature. Powdered plant material was filtered for four days in different doses of methanol, chloroform and water, respectively. The plate is then cleaned and dried with a circulating steam. A temperature of 40 ° C should be maintained as long as a small amount of discharge remains, and then set at room temperature. The dry spice was stored at temperatures between 15 ° C and 35 ° C with a small biodegradation of Lantana essential oil.

Value Addition

Lantana is widely used in fodder, fodder and feed. Lantana exhibits limited systems in food production products, as there are many toxic substances found in different parts of the Lantana that greatly reduce its biological use. Essential oils of flowers and leaves show widespread use in the pharmaceutical industry (Ahmed *et al*., 1972). Lantana has long been used as a honey plant in many parts of the world (Tamene *et al*., 2000). Lantana also shows many applications for biofluids and combustible wood. Lantana essential oil from various sources has various uses in the medical and pharmaceutical industries. Several parts of

Lantana, especially rivers, show toxic effects on mammals when they breathe heavily. However, the low concentration of lanthanum barrier extract does not affect the female organ system. Lantana essential oil has a strong aroma and a variety of applications in pesticide products. Lantana essential oil pesticide products have been shown to be effective in killing pests and insects, thus improving crop yields.

Ethanopharmacological Reports

Traditionally, various parts of the plant are used medicinally. This plant has diaphoretic, carminative, antispasmodic and tonic. It helps to treat chronic illness, malaria, epilepsy and acute pain. Different parts are used for the treatment of various things. A decoction of fresh roots is considered a good gargle for teeth and diarrhea. The powdered leaves are used for cuts, wounds, sores and inflammation. Giving it leaves helps with biliary fever, eczema and skin rashes. Fruit is beneficial for tissue and rheumatism (Viadyaratnan *et al*., 1995). The bark exhibits antipyretic and antispasmodic properties. The flowers are used to treat epilepsy, skin inflammation, rheumatism and to promote toxic cleansing in the diet (Wealth of India, 1998). This plant has been used as a traditional remedy in the treatment of tissues and tissues. The leaves and flowers are used to make herbal teas against colds, flu and stomach aches. The whole plant extraction was used in the treatment of bronchitis. The powdered root is given in milk to treat abdominal pain (Irvine, 1961).

Chemical Constituents

L. camara contains a wide variety of potentially healing organisms such as flavones, isoflavones, flavonoids, lignans, anthocyanins, alkaloids, coumarin, catechins, isocatechins, saponins , tannins and triterpenoids, carbohydrates, essential oils, glycosides, steroids, steroids, 2009, 2009; Venkatachalam *et al*., 2011; Kensa, 2011; Katati *et al*., 2011; Bhakta *et al*., 2009).

Table 4: Pharmacological Activities : The plant has shown various types of activities which are given below.

S.No.	Activity reported	Part used	Extract used	References
1	Antioxidant	Leaves	Methanol	Mayee, 2011
2	Antimicrobial	Flower, leaves, root, stem	Chloroform	Mary, 2011
3	Antifungal	Leaves	Methanol	Rawangabo, 1998
4	Antiviral	Leaves	Methanol	Rawangabo, 1998
5	Wound healing	Leaves	Ethanol	Shivanandal, 2008
6	Antiparasitic	Leaves	Methanol	Kumar *et al*., 2008
7	Antiulcerogenic	Leaves	Methanol	Thamotharan, 2010

8	Antihelmintic	Leaves, stem, root	Methanol	Grime, 2006
9	Antipyretic	Leaves	Ethanol, Ethyl acetate	Shonu, 2010
10	Antihyperglycemic	Leaves	Methanol	Ganesh, 2010
11	Antibacterial	Leaves	Methanol	Rawangabo, 1998
12	Anti-inflammatory	Leaves	Aqueous	Gidwani *et al*., 2009
13	Antimitotic	Flower	Petroleum ether, Chloroform,Ethanol, Aqueous	Ghangal *et al*., 2011
14	Antimotility	Leaves	Methanol	Sagar *et al*., 2005
15	Mosquito controlling	Leaves	Essential oil	Dua *et al*., 2011
16	Antifilarial	Leaves	Methanol	Mayee *et al*., 2011
17	Anticancer and proliferative	Leaves	Methanol	Ghosh *et al*., 2010
18	Antimutagenic	Leaves	Methanol	Barre *et al*., 1997

CONCLUSION AND FUTURE VISIONS

The current review aims to document morphology, dissemination, phytochemistry and *L. Camara* and its future hope for further scientific research to develop effective therapeutic combinations. The results of this study are often used as appropriate internal control measures to make sure the standard, safety and efficacy of this medicinal substance and these studies also can be used as additional information on the parameters to identify the acceptable and quality control of this plant. Now, phytochemical and pharmacological studies are being conducted on different parts of these plants daily. Current literature supports the possibility of *L. camara* as a medicinal plant.

SUMMARY

L. *camara* is a garden ornament of the Verbenaceae family. It is a plant that has been widely distributed throughout the world and has been used for thousands of years for food flavor, essential oil production, and traditional medicine. It contains powerful bioactive agents such as flavones, isoflavones, flavonoids, lignans, anthocyanins, alkaloids, coumarins, catechins, isocatechins, saponins, tannins and triterpenoids, carbohydrates, essential oils, glycosides, steroids. The size of these chemical elements varies depending on the species or crop, as well as the growing conditions, such as soil type, climate, irrigation, pruning and other farming practices. Lantana essential oil shows many medicinal properties. Various industrial applications such as food, cosmetics and chemicals are the most common products of Lantana essential oil. Plant growth has been accepted as a recent push for growth of other plants due to biodiversity. In recent times, much attention has been paid to the study of conventional medicinal plants because of their low toxicity and economic power. Continued use and use of Lantana products are added continuously. Traditionally, harvesting and post-harvest methods are often used in various parts of the plant, especially Lantana leaves and flowers.

Quality control works by studying purity, safety, power and efficiency. Therefore, evaluation and quality control of herbal medicines and supplies is always required. The quality level of any herbal medicine is linked to its similarity in quality, which is the number one in which the quality of basic products can be assessed. Details on which levels can be derived are obtained by studying the real medicine, the method used in adultery, and the methods used to detect prostitutes. There are

various factors that should be considered as pharmacognostic levels. The popularity of herbal remedies is growing worldwide and especially in developed countries, but one of the obstacles to their acceptance is the lack of a standard quality control profile. The World Health Organization (WHO) is emphasizing physico-chemical and phytochemical testing of pharmaceutical ingredients to improve the prescribed quality control profile of herbal medicines.

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