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Review On *Leea alata* Edgew Family vitaceae with Special Reference To Gwalior District, (M.P.)India.

Raju Vishwakarma 1, Dr. Syed Shahab Ahmad 2
1Research Scholar, 2 Research Guide, Department of Botany, Sri Satya Sai University of Technology & Medical Sciences, Sehore, M.P.

ABSTRACT

The aim of the research was to evaluate the ethnobotanical and phytochemical screening of the medicinal plants of Gwalior District, M.P. The selected medicinal plants were *Leea alata* Edgew.The main objectives of the research were ethnobotanical survey and uses of traditional knowledge for pharmacological significance of selected medicinal plants; phytochemical analysis of the selected medicinal plants; to create optimum awareness and interest amongst the common people ; to undertake Researches on the development and formulation of Herbal drugs in close collaboration with Universities, Research Institutions and industries; to increase public awareness about the efficacies of herbal drugs; to develop effective micro propagation system for cost effective quality plant materials emphasizing the proper tie up with growers / industries for mass production of tissue-cultured medicinal plants; to promotion of cultivation and conservation of Medicinal Plants and to identify the plants to be conserved/cultivated in-situ at the different agro-climatic regions of the State and those to be cultivated /conserved in the fields (Ex-situ) etc. After collection, the samples were sent to State Forest Research Institute Jabalpur, Madhya Pradesh for authentication. After authentication, fresh plant material was collected in bulk, washed under running tap water to remove adhering material, dried under shade and pulverized in a mechanical grinder. The coarse powder was passed through sieve no. 40 and taken for further studies. The above-mentioned medicinal plants were taken for phytochemical analysis. In present study the identification of plants, documentation, herbarium, Ethno-medico observation and photography of selected plant species was done in study areas of District Gwalior, M.P. Ethno-botanical information was gathered from tribal people, Vaidya's and ethnic peoples. Present study was based on intensive field survey during the research tenure. The identification of the plant species was done with the help of flora of various past of India. Ethno botanical knowledge was documented from various part of Indians sub continent. The collection of voucher specimens of plant species with vernacular name and field notes were also discussed during field trips. The first-hand information on the medicinal plants used by the villagers was taken. Petrochemical analysis was conducted based on protocol and results were chronicled. The phytochemical screening of the medicinal plant may be help to identify the active medicinal compounds.

Plants form these components to protect themselves, but studies also suggest that numerous phytochemicals can also shield humans from disease. The importance of such information for the production of complex chemical substances makes an understanding of plant chemical ingredients crucial. Plants have a lot of alkaloids, flavonoids, saponins, tannins, and other secondary metabolites that are known to kill bacteria in test tubes.

Key word: Medicinal plant,antimicrobial activity, phytochemical,ethnomedicinal.

INTRODUCTION:

Glabrous climbing shrubs with warty stems, simple tendrils, and opposing, wiry leaves Compound, trifoliolate leaves have petiolules that are about 3–7 mm long, petioles that are about 3–10 cm long, and lamina that are about 5–12 x 3-5.5 cm, acute to cuneate at the base, slightly acuminate at the apex, whole to serrulate upward along the margins, and glabrous on both surfaces. Axillary thick cymes with compact inflorescences 1.5-2 cm wide globular berries containing 1-3 oblong seeds 2 metres or so under shrubs. imparipinnate leaves with rectangular, acuminate, serrated, and rounded leaflets; petioles 5–15 mm; and grooved rachis. Flowers in terminal cymes are red, 5-merous, and 4-5 mm wide. a 5-lobed calyx. red corolla that is joined to the staminal tube at the base and connate. The ovary is placed near the base of the stamen. Berries are 10-12 mm wide, globose, and red. Himachal Pradesh, Uttar Pradesh, Bihar, West Bengal, Sikkim, Assam, Arunachal Pradesh, Meghalaya, Orissa, and Madhya Pradesh are the locations of the geographic sources.The

Leea alata Edgew have been shown to contain a variety of phytochemicals, including flavonoids, glycosides, phenols, terpenoids, steroids, volatile oils, alkaloids, proteins, quinine derivatives, tannins, saponins, and many other organic substancesThe selected plant namely *Leea alata Edgew* Family vitaceae has been found Gwalior, M.P., India which is the famous for medicinal plant cultivation.

REVIEW OF LITERATURE:

According to M. Shah et al. (2021), the family Leeaceae includes the genus *Leea*,which is primarily found in tropical and subtropical regions of Asia, Africa, and Madagascar. It consists of 36 species that are used for various medical purposes across the globe. In this decade, systematics, phylogenetic studies, analytical chemistry, the discovery and isolation of active metabolites, pharmacology, and phytochemistry have all seen an increase in interest in studies of the genus *Leea*. The *Leea* family has a wide spectrum of phytochemicals, with flavonoids, phenolics, triterpenoids, and tannins being the main ones. These phytochemicals have a wide range of pharmacological actions. There are claims that certain plant parts can be utilized to treat both human and animal illnesses. While Leeaceae members *(Leea* species) lack tendrils and are erect herbs, shrubs, and trees, they share characteristics with Vitaceae members such as raphides, tiny sap droplets known as pearl glands, phloem plastids, common corolla-stamen primordia, and similar wood and testa morphology. The most significant species in the genus are *Leea indica* and *Leea macrophylla*, whose roots, leaves, and entire plants have a variety of pharmacological effects because they are abundant in flavonoids, triterpenoids, and tannins. This review offers new insights into the genus *Leea* and the prospective usage of species in the genus as medicinal plants. According to T.R.Prashith Kekuda et al. (2018), humans have used plants for a variety of purposes, including medicine, since the dawn of time. The usage of plants in traditional medicine is essential. The family Vitaceae includes the big shrub known as *Leea indica (*Burm.f.). Traditional usages of the plant *L.indica* can be found throughout the world, including in Indonesia, Malaysia, Thailand, Nepal, and India.

MATERIALS AND METHODS:

Preparation of Extracts:

Extract of the crude sample was prepared by extraction method Soxhlet. About 20gm of powdered sample material was uniformly packed into a thimble and extracted separately with 250ml of various solvents including methanol, diethyl ether, and hexane. The extraction process proceeds for 24 hours, or until the extractor solvent in the siphon tube is colorless. The extract was taken in a beaker afterwards and kept on a hot plate and heated at 30-40oC till all the solvent was evaporated. Dried extract was kept at 4oC in the fridge for future use.

Petrochemical Screening:

Detection of Alkaloids:

Extracts were dissolved individually in dilute hydrochloric acid and filtered.
a) Mayer's test: Filtrates have been treated with reagent Mayer. Formation of a precipitated yellow cream indicates the presence of alkaloids.
b) Wagner's test: Wagner's reagent was treated with filtrates. Brown/ reddish brown precipitate formation indicates the presence of alkaloids.

Detection of Flavonoids:

a) Lead acetate test: Extracts were treated with a few drops of a solution of lead acetate. Formation of precipitated yellow color indicates the presence of flavonoids.
b) H2SO4 test: Few drops of H2SO4 were treated with extracts. Orange color formation indicates flavonoid presence.

Detection of Steroids:

Liebermann- Burchard test: 0.5 g of the extracts was combined with 2ml of acetic anhydride, each with 2ml of H2SO4. In some samples the color changed from violet to blue or green shows the presence of steroids.

Detection of Terpenoids:

Salkowski's test: 0.2 g of the whole plant sample extract was carefully applied to form a sheet, mixed with 2ml of chloroform and concentrated H2SO4 (3ml). A reddish-brown interior coloration suggested the presence of terpenoids.

Detection of Anthroquinones:

Borntrager's test: Approximately 0.2 g of the extract was boiled for a few minutes in a water bath with 10 per cent HCl. It was filtered, and cooling allowed. The filtrate was supplemented with equal volume of CHCl3. A few drops of 10 per cent NH3 have been added and heated to the mixture. The presence of anthraquinones indicates the formation of pink color.

Detection of Phenols:

a) Ferric chloride test: With few drops of 5 per cent ferric chloride solution, extracts were treated. Bluish black color formation indicates presence of phenol.
b) Lead acetate test: Extract was treated with a few drops of a solution of lead acetate. Precipitate yellow color formation represents the presence of phenol.

Detection of Saponins:

Froth test: With 5ml of distilled water around 0.2 g of the extract was shaken. Frothing formation (persistent appearance of creamy stable small bubbles) shows the presence of saponins.

Detection of Tannins:

Ferric chloride test: A small amount of extract was mixed with water and heated on a bath of water. The mixture was filtered and added to the filtrate 0.1 percent ferric chloride. The presence of tannin indicates a dark green color.

Detection of Carbohydrates:

Fehling's test: 0.2gm filtrate is boiled with 0.2ml each of Fehling solutions A and B in a water bath. A red precipitate indicates sugar content. Fehling's solution A: Copper sulphate (34.66g) is dissolved in distilled water and made up to 500ml using distilled water. Fehling's solution B: Potassium sodium tartarate (173g) and sodium hydroxide (50g) is dissolved in water and made up to 500ml.

Detection of Oils and Resins:

Spot test: Filter paper was processed with the test solution. The filter paper starts to take on a transparent look. It suggests that oils and resins are present.

RESULTS AND DISCUSSION:

Table : Phytochemicals constituents of the extracts of leaves: The present study exhibited the presence and absence of phytochemical-

phytochemicals	Methanol	Diethyl ether	Hexane
Alkaloids	+	-	-
Favonoids	-	+	+
steroids	+	-	+
Terpennoids	-	-	-
Anthraquinones	+	-	+
phenols	-	+	-
Saponins	+	+	+
Tannins	+	+	-
Carbohydrates	+	-	+
Oils and Resins	-	+	-

Present= + Absent = -

Phytochemicals are typically split into two divisions, namely primary and secondary components. Well-known carbohydrates, amino acids, proteins, and chlorophyll are among the primary ingredients, whereas alkaloids, terpenoids, steroids, and flavonoids are among the secondary constituents. Plant elements like flowers, bark, leaves, roots, and fruits all contain active ingredients, according to a phytochemical study on plant extracts. Phytochemicals are substances found in plants that are not edible but have curative or disease-preventive qualities. Plants form these components to protect themselves, but studies also suggest that numerous phytochemicals can also shield humans from disease. The importance of such information for the production of complex chemical substances makes an understanding of plant chemical ingredients crucial. Plants have a lot of alkaloids, flavonoids, saponins, tannins, and other secondary metabolites that are known to kill bacteria in test tubes.

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