

Medicinal Plants and Their Phytochemical Analysis

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Abstract: The plants i.e. Marwa, Sadabahar, Kaner, Champa, Harsingar, Amla were selected for the study. These all possess good medicinal properties. Marwa is a great antiseptic, antibacterial, antifungal, and antiviral agent while: Sadabahar leaves and stems are a source of alkaloids that have anti tumor and anti cancer properties. Kaner whole plant is said to have anticancer properties, helps in painful menstrual periods, leprosy, malaria, ringworm, indigestion, and venereal disease. The sap of the champa plant is used as a laxative and is a remedy for bloating and stomach aches. Harsingar is one of the oldest system of medicines uses plants and their extracts for the treatment and management of various diseases. Amla fruit is a laxative, diuretic, antipyretic and rejuvenative. It is used in the treatment and management of diabetes, asthma, anemia etc.

Keywords: antimicrobial activity, Phytochemical testing




1. Introduction




Plants are the important part of human life, every part of the plant is useful for us in one or the other way. India is very rich in medicinal plants. Many plants were used in treating critical illness. These may be used in many ways i.e in powder form, syrup form, chutney etc. These plants also possess antimicrobial properties, which make them more useful in textile industry. The extract of these plants were used in treating fabrics for developing antimicrobial

finishes. Phytochemical test is the best way to know about the efficacy of plant for antimicrobial activity.

6 plants were explored for the research for their antimicrobial activity. These were as follows:

- 1) Marwa
- 2) Sadabahar
- 3) Kaner
- 4) Champa
- 5) Harsingar
- 6) Amla

S.no.	Common Name	Botanical Name	Part used	Picture
1.	Marwa	Origanum majorana	Leaves	
2.	Sadabahar	Catharanthus roseus	Leaves	
3.	Kaner	Nerium oleander	Leaves	

4.	Champa	Plumeria rubra		
5.	Harsingar	Nyctanthes arbor-tristis		
6.	Amla	Phyllanthus emblica	Leaves	

1) Marwa (*Origanum majorana*) – The parts that are used to make medicines are the stems, flowers and the leaves. The green tree has white flowers and has branched heads which from a distance look like knots. The well dried leaves of the herb used in medicinal products. It has fragrant, sharp, bitter, camphor like and spicy flavored herb. People make medicine from marjoram’s flowers, leaves, and oil. To enhance the digestive system's performance, 2-4 cups of marjoram tea may be ingested in 2 hours. Drinking the tea will help digestion by:

- Increasing the efficiency of digestion by increasing digestive enzymes and saliva
- Calming the stomach and digestive system.
- Improving appetite
- Relieving nausea
- Eliminating flatulence
- Curing or preventing basic intestinal infections
- Soothing painful stomach cramps or spasms
- Relieving diarrhea
- Relieving constipation

2) Sadabahar (*Catharanthus roseus*)- Almost all parts of this plant have medicinal properties. It is an evergreen shrub that works as an ornamental **plant** and for **medicinal** purposes. The smooth, glossy and dark green coloured leaves along with flowers are said to act as natural medicine for type-2 diabetes **Sadabahar** plants contain various alkaloids that are

useful in conditions such as cancer, diabetes, high blood pressure and stroke. The bioactive ingredients vinblastine and vincristine are used in the treatment of leukemia and Hodgkin's lymphoma. Sadabahar, Periwinkle Uses & Effectiveness:

- Diabetes: It is useful in treating gastritis, cystitis, enteritis, diarrhea, diabetes, etc when taken internally.
- Cancer: Sadabahar leaves and stems are a source of alkaloids that have anti tumor and anti cancer properties. Fluid retention.
- Nosebleeds : Sadabahar controls nosebleeds, bleeding gums, mouth ulcers and sore throats
- Increasing blood circulation: Despite serious safety concerns, periwinkle is used for “brain health” (increasing blood circulation in the brain, supporting brainmetabolism, increasing mental productivity, preventing memory and concentration problems and feebleness, improving memory and thinking ability, and preventing early aging of brain cells).
- Cough.
- Lung congestion.
- Sore throat.
- Eye irritation, when applied to the eye.
- Skin infections, when applied to the skin.
- Stopping bleeding, when applied to the skin.

3) Kaner (*Nerium oleander*)- Oleander is an evergreen shrub with thin, erect branches; it can grow to a height

of 4 - 8 metres. A very poisonous plant it is sometimes gathered from the wild for medicinal and other uses. It is often cultivated as an ornamental plant, where it can be grown as a hedge. Despite the danger, oleander seeds and leaves are used to make medicine. Oleander is used for heart conditions, asthma, epilepsy, cancer, painful menstrual periods, leprosy, malaria, ringworm, indigestion, and venereal disease. Oleander is also used to cause abortions. The plant is used as a rat poison, a parasiticide and an insecticide. The pounded leaves and bark are used as an insecticide. A green dye is obtained from the flowers. The plant is commonly used for informal hedging in the Mediterranean. The leaves contain small amounts of latex that can be used to make rubber, though the amount is too small for commercial utilization. The plants have an extensive root system and are often used to stabilize soil in warmer areas. The whole plant is said to have anticancer properties. The root is powerfully resolvent. Because of its poisonous nature it is only used externally. It is beaten into a paste with water and applied to chancres and ulcers on the penis. Oleander is sometimes applied to the skin to treat skin problems and warts.

- 4) Champa (*Plumeria rubra*)- *Plumeria rubra* is an ornamental tree of Apocynaceae family. *Plumeria rubra* is a flowering plant. Flowers are very fragrant, generally red pink or purple center rich with yellow. *Plumeria rubra* reported to have anti-fertility, anti-inflammatory, antioxidant, hepatoprotective and antimicrobial activities. It has been used in the folk medicine systems of civilizations for the treatment however as abortifacient, drastic, purgative, blennorrhagia, used in toothache and for carious teeth. The plant has also been shown to be an antifungal, antiviral, analgesic, antispasmodic, and hypoglycemic. *It also* contains agoniadin, plumierid, plumeric acid, cerotinic acid, and lupeol, and the stem possesses an alkaloid called triterpenoid. The plant has been known to promote digestion and excretion, along with respiratory and immune functions. The sap of the plant is used as a laxative and is a remedy for bloating and stomachaches. The bark is said to be purgative and is also used for venereal sores. The flowers can be boiled in water or juice and made into a salad to promote bowel movement, urine flow, and to control gas and phlegm. The flowers are also used in the treatment of asthma.
- 5) Harsingar (*Nyctanthes arbor-tristis*) – *Nyctanthes arbor-tristis* commonly known as night jasmine or Harshringar is an important medicinal plant mainly used in Ayurveda. It is one of the oldest system of medicines uses plants and their extracts for the treatment and management of various diseases. Various parts of the plant like seeds, leaves, flowers, bark and fruits have been investigated for their significant pharmacological activity. Phytochemicals like flavanoid, glycoside, oleanic acid, essential oils, tannic acid, carotene, friedeline, lupeol, glucose, benzoic acid have been reported for significant hair tonic, hepatoprotective, anti-leishmaniasis, anti-viral, antifungal, anti-pyretic, anti-histaminic, anti-malarial, anti-bacterial, anti-

inflammatory and anti-oxidant activities. The leaves juice is bitter in taste and works as a tonic.

- The paste prepared from leaves is useful in the fever, high blood pressure and diabetes.
- Leaf juice is given in cough as it has expectorant action.
- Leaf juice with honey, three times a day, is useful in the treatment of fever, cough. Fever which occurs at irregular intervals and is not continuous or steady, the leaves juice in a dose of 10 ml, twice a day for five days is given.
- Leaves juice is given with sugar for intestinal ailments.
- The decoction or Kadha of leaves is extensively used by Ayurvedic physicians for the treatment of arthritis, obstinate sciatica, malaria, intestinal worms and as a Tonic, cholagogue and laxative.

White-orange aromatic flowers on oral administration tones stomach, prevents gas formation, astringent to bowel, prevents excess bile secretion by the liver, cures cough. The corolla tube is bright orange in color due to nycanthin, which is similar to coloring substance of saffron. The powder of stem bark is useful in the treatment of rheumatic joint pain and malaria. In Orissa, stem bark of Parijata is boiled with dry ginger power and pippali or long pepper. This is taken orally for two days to cure malaria.

- 6) Amla (*Phyllanthus emblica*) - The plant is used both as a medicine and as a tonic to build up lost vitality and vigor. *Phyllanthus emblica* is highly nutritious and could be an important dietary source of vitamin C, amino acids, and minerals. The plant also contains phenolic compounds, tannins, phyllembelic acid, phyllembelin, rutin, curcum-inoids, and emblicol. All parts of the plant are used for medicinal purposes, especially the fruit, which has been used in Ayurveda as a potent rasayana and in traditional medicine for the treatment of diarrhea, jaundice, and inflammation. Various plant parts show antidiabetic, hypolipidemic, antibacterial, antioxidant, antiulcerogenic, hepatoprotective, gastroprotective, and chemopreventive properties. fruits, seeds, flowers, leaves and bark. Fresh fruit pulp is used in different ayurvedic preparations. Dried rind of fruits is ground to make powder and used as Amla Churna (Amla Powder). Amla fruit is a laxative, diuretic, antipyretic and rejuvenative. It is used in the treatment and management of diabetes, asthma, anemia, cardiac disorders, flatulence, hyperacidity, peptic ulcers, skin diseases, cardiac disorders, intermittent fever, diarrhea and dysentery. Amla seeds are also used for the treatment and management of bronchitis and asthma. Amla flowers are refrigerant, cooling and are used to relieve constipation.

Phytochemical screening

Chemical tests for the screening and identification of bioactive chemical constituents of the medicinal plants under the study were carried out for extracts using the standard procedures. Phytochemical analysis of different selected plant leaves was done on three different mediums

i.e aqueous, methanol and ethanol. The screening of Alkaloids, Flavonoids, Glycosides, Steroides, Cardiac glycosides, Saponins, Phenols, Terpenoids and Quinone were observed. Out of 6 sources the best results were observed in Marwa and Sadabahar. These two sources were showing maximum affinity towards antimicrobial activity as compared to other sources.

Marwa- tested phytochemical constituent's flavanoids, steroids and cardiac glycosides were present in all three solvents. Saponins and quinone were not found in any of the medium. Alkaloids were in aqueous and ethanol, phenols were only in ethanol, terpenoid only in methanol. Glycosides showed their presence in methanol and ethanol while tannins in aqueous and methanol.

Sadabahar- alkanoids, Glycosides, and Cardiac glycosides were present in all the three solvents. Steroids and phenols were found in methanol and ethanol while terpenoid and Quinone were only found in methanol medium. Tannins was found in aqueous and methanol medium. Flavonoids and saponins were not found in any of the medium.

This shows that both these sources i.e. marwa and sadabahar possess good antimicrobial activity.

2. Conclusion

The six different medicinal plants were explored to know about their antimicrobial activity these were Marwa, Sadabahar, Kaner, Champa, Harsingar, Amla. Out of 6 sources the best results were observed in Marwa and sadabahar. These two sources were showing maximum affinity towards antimicrobial activity as compared to other sources.

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