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Role of ayurvedic medicinal plants in ancient India

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Abstract
Ayurvedic herbs played important role in Ayurvedic treatment, from ancient time to this most modern time. Indian medicinal plants are the essence of Ayurveda and Ayurvedic treatments. When used judicially and clocking with the basic principles they produce miraculous effects. Their role cannot be confined to mere curative of disease but they are also used on human body. Hence, Ayurvedic drugs rightly called the elixirs of life. Medicinal herbs show good result on disease cure. Ayurveda is the medical or health care system in India, which uses this as treatment base with 'Theoretical Principals'. We need to research many things to find out the pharmacological action of it.

Keywords: Indian, Ancient, Ayurveda, Medicine, Treatment

1. Introduction
Indian medicinal plants are plants using in Ayurveda mainly as medicinal purpose. Ayurvedic medicinal plants are gate way miracles, if way of treatment and basic principles of is correct. Vata, pitta & kapha are the three elements which have definite properties to keep our body, mind and everything normal. Ayurvedic medicinal plants have been classified according to their properties like Rasa, Guna, Virya, Vipaka. This classification help us how to manage/ work medicinal plants to cure diseases. Ayurveda says vitiation/abnormal increase in Vata, pitta & kapha are main cause of disease. Vitiation is due to increase or decrease of similar properties. All the Dravya/ substance has properties (guna), Vata, pitta & kapha have also similar properties. Properties similar to Vata, pitta & kapha, do considerably increase in related Doshas, opposite properties decreases the qualities of related Doshas. So proper identification of Ayurvedic medicinal plants is important in the field of treatment. Medicinal plants used in South India & North India are different, even though Sanskrit names are similar, but they show same action. We have classified Ayurvedic medicinal plants according to their synonyms which give exact idea or colourful pictures about medicinal plants.
Susrutha has defined Ayurveda as a science in which the knowledge of life exists or which deals with the knowledge or science of longevity. Dalhana, an authoritative commentator of Susrutha, has clarified this definition, as Ayus (life) is a combination of Sarira (body / soma), Indriyas (sense organs), Sattva (manas / psychic) and Atma (soul / spirit). Ayurveda is therefore a science in which knowledge of Sarira, Indriyas, Sattva (Mind) and Atma exists. Bramha taught eternal science of Ayurveda to Daksa. There have no clear evidence for he created a 'Prajapathe Samhita', but in 'Bramha vaivarta Purana', discussion about these, Samhita have. There have no clear evidence in Ayurvedic Samhitas.
The earliest literature on Indian medical practice appeared during the Vedic period in India. All the Vedas-Rig, Yajur, Sam, and Atharv have contributed to the development of Ayurveda. The Shushrut samhita and the charaka samhita are great encyclopedias of medicine compiled from various sources from the 600-BC to about 500. Charaka samhita has mentioned about 341 plants while Shushrut samhita have listed 760 medicinal plants. They are among the foundational works of Ayurveda.
A number of drugs and surgical methods are developed by ayurvedic practitioners for various ailments. Ayurveda stresses on a balance of three elemental energies or humors vata (air & space - "wind"), pitta (fire & water -"bile") and kapha (water & earth "phlegm"). According to ayurvedic medical theory, these three dosas are important for health, because when they exist in equal quantities, the body will be healthy, and when they are not in equal amounts, the body will be unhealthy.
Ayurveda stresses on the use of plant-based medicines and treatments. Hundreds of plant-based medicines are employed by ayurvedic practioners. Some animal products may also be used, like milk, bones and minerals including sulphur, arsenic, lead, copper sulphate. Some metals like gold, silver and mercury are also consumed as prescribed. Many ayurvedic herbs used for therapy have shown very promising results like turmeric and its derivative curcumin are very good antioxidants. Tinspora cordifolia has been tested for its hepato- protective nature, Salvia officinalis (Common sage) may improve Alzheimer's patients. Many plants used as rasayana (rejuvenation) medications are found potent antioxidants.

2. Materials
Aurvedic Medicinal Plants used in Ancient as well as Modern times

i) Withania somnifera
It is commonly known as Ashwagandha is an important family Solanaceace known for rejuvenating properties, it is also known as Indian Ginseng. It is a very important herb of ayurvedic indigenous medical system known for more than 3000 years. It is a very small woody shrub native to drier parts of India.

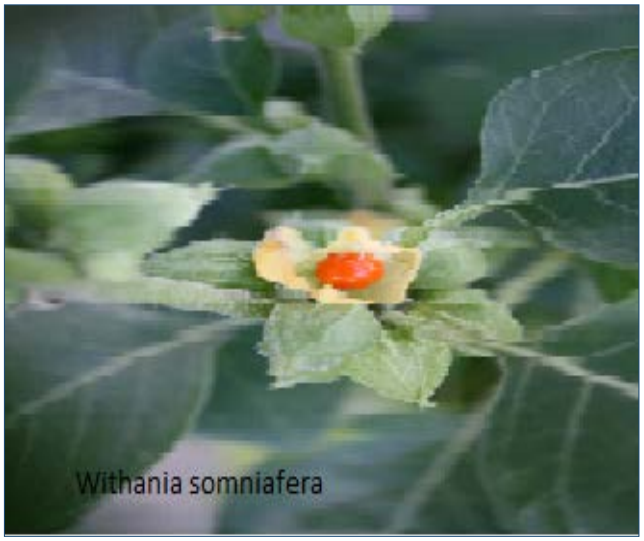

Fig 1

Chemical composition & isolation

The major constituents of Ashwagandha root are steroidal alkaloids and steroidal lactones of a class of compounds known as withanolides. Near about 12 alkaloids and 35 withanolides have been isolated from the plant so far. The whole plant is used for the extraction of compounds. From leaves 9–steroidal lactones of withanolide series are extracted. Stem bark contains some withanolides while root contains few alkaloids, flavonolides and free amino acids.

Medicinal Properties: W. somnifera inhibits growth in central nervous system, lung, and colon and breast cell illnes. Extract of withania somnifera was found helpful in preventing tumour growth in cancer patients. Studies show that ashwagandha possesses antiinflammatory, antistress, antioxidant, immunomodulatory, hemopoetic, and rejuvenating properties. It also appears to exert a positive influence on the endocrine, cardiopulmonary, and central nervous systems. Found effective in the treatment of osteo-arthritis inflammation. According to the ayurvedic practioners in ashwagandha Rasa is tikta, Guna – snigdha, Veerya- ushna and Vipaka is madhura. It is helpful in kapha and vata dosas, and very effective in controlling blood sugar and cholesterol level. It improves overall health so given as rejuvenating drug to the aged persons.

ii) Tinospora cordifolia

It belongs to the family Menispermaceae and is commonly known as giloiya, guduchi or amruta, the plant is commonly known as Giloya, which is a Hindu mythological term that refers to the heavenly elixir that have saved celestial beings from old age and kept them eternally young. It is used in ayurvedic medicine from a long time (the traditional medicine of India). It is a large, glabrous, deciduous climbing shrub. It is distributed throughout tropical Indian subcontinent, China, Pakistan and Srilanka, ascending to an altitude of 300 m.

Fig 2

Chemical composition and isolation: From the stem of Tinospora cordifolia alkaloid berberin, tinosporin and palmitin are isolated while from roots, tinosporin and palmatine are isolated. From the whole plant, the diterpenoiddal lactone tinosporide and tinosporon are obtained. Beside these compounds giloin, gilonin and tinosporic acid are also isolated from the whole plant of Tinospora cordifolia.

Medicinal Properties: or giloya is widely used medicine in ayurvedic system of medicine for its general tonic, antiperiodic, anti-spasmodic, antiinflammatory,anti-arthritic,anti-allergic and antidiabetic properties. The plant is used in ayurvedic, "Rasayanas" to improve the immune system and the body resistance against infections. The root of this plant is known for its ant-istress, anti-leprotic and anti-malarial activities The stem is bitter, stomachic, diuretic,stimulates bile secretion, causes constipation, allays thirst, enriches the blood and cures jaundice. The extract of its stem is useful in skin problems. The root and stem of T. cordifolia are prescribed in combination with other drugs as an anti-dote to snake bite and scorpion. Dry barks of T. cordifolia has anti-spasmodic antipyretic, antiallergic, anti-inflammatory and anti-leprotic properties.According to ayurvedic practioners Rasa of the plant are –tikta, Virrya is heating and Vipaka is madhura . It is widely used for urinary complaints and rheumatism.

iii) Calotropis gigantea

Calotropis gigantica is a plant of family **Asclepidaceae** commonly called milk-weed or **madder**. It is found throughout the India in dry waste lands upto a height of 900m. Madar is a large hard much branched shrub, 3-4 feet in height. The whole plant is used as medicine; it is covered with soft white wool.

Chemical composition and composition: Latex of the plant contains the cardiac glycosides, a complex mixture of chemicals, some of which are steroidal heart poisons known as "cardiac aglycones. Calotropis contains some glycosides known as calotropin, calotoxin, calactin. Uscharidin and

voruscharin are the sugars with nitrogen and sulphur in their structures. Lupeol is isolated from latex. Quercetin-3-rutinoside is identified in the roots, stem, leaves, flowers and latex.

Medicinal Properties: The whole plant is used as medicine; its latex is used for the skin problems. In Ayurveda the madar plant is used for asthma, bronchitis, dyspepsia, and swelling. Heated leaves are applied on the painful and swollen joints, it relieves the pain due to arthritis. Powdered root bark of the plant is given to the patient suffering from jaundice, asthama and bronchitis. It is used as febrifuge, anthelmintic, expectorant and antidote to snake bite. Its latex is used to induce abortion by folk people.

iv) Andrographis paniculata

A. paniculata is a shrub of family **Acanthaceae**. It grows in most places in India, including the plains and hilly areas up to 500m. Native populations A.paniculata are spread throughout south India and Sri Lanka which perhaps represent the centre of origin and diversity of the species.Since the time Andrographis paniculata or kalmegh is a popular Ayurvedic remedy for the common cold, digestive issues and many other illness.\

Fig 3

Chemical compositionand isolation: It is a plant is known to possess a variety of pharmacological activities. Andrographolide bitter water –soluble bicyclic diterpenoid lactone is the major constituent extracted from the leaves, beside this compound andrographine and many flavanoids are also extracted from the root of the plant. Neoandrographolide and Oxyandrographolide from whole plant have also been isolated

Medicinal Properties: A. paniculata is used in traditional ayurvedic and siddh systems of medicine as well as in tribal medicine in India and some other countries for multiple clinical applications. Leaves of the herb Andrographis paniculata are used for ailments ranging from poor digestion to hepatitis. In the Chinese medical tradition, the plant has been used to treat everything from gastrointestinal complaints to throat infections. The plant extract exhibits anti-typhoid, anti-diabetic and antifungal activities. Kalmegh is also reported to possess, antibiotic, antimalarial, antithrombogenic, antiinflammatory, and anti hepato toxic, antisnake venom, antipyretic and anti-cancer drug. It is used to regulate high blood pressure but it is restricted for pregnant women. Andrographis balances pitta and kapha dosas, its rasa is tikta guna is ruksha, veerya is ushna and vipaka iskatu.

v) Burn plant - *Aloe vera*

Aloe vera (A. barbadensis) the best known member of the genus but other Aloe species used for medicine. These A.barbadensis about 33 species of herbaceous perennials native to India and North America. Its common name is Aloe-vera. It is a widely used in ayurvedic medicines. It is widely used for thousands of years as treatments for various skin diseases.

Fig 4

Chemical composition and isolation: Leaves of the plant Aloe-vera contains the Chrysophanic acid also present - possibly the compound with the greatest healing effect on skin. It contains numerous compounds including several anthraquinone glycosides collectively referred to as **aloin**. Thick mucilaginous sap is isolated from Aloe leaves. They provide soothing effect on injured skin.

Medicinal Properties: A.barbadensis is used in traditional ayurvedic medicine as well as in tribal medicine in India for multiple clinical applications. Leaves of the herb A. barbadensis are used for Sap promotes faster healing with less scaring by stimulating cell growth. They Inhibits bacterial and fungal infection.The plant sap inhibit pain, itching, and inflammation, antibiotic, antipyretic and anti-inflammatory drugs. In recent years the cosmetic industry has capitalized on the moisturizing effects of the sap and it can be found in a variety of skin creams, shampoos, sun screen lotions, and bath oils etc.

Some important medicinal plants

- Osmium- fever, cough-osmum
- Foxglove - heart disease – digitalis
- Willow bark tea - pain, fever – aspirin
- Fever Bark Tree - malaria – quinine
- Snakeroot - hypertension - reserpine
- Aloe - burns - various glycosides
- *Vinca* - leukemia - vincristine
- *Taxus* - ovarian & breast cancer – taxol

Fig 5

3. Results and Discussion

The medicinal plants described here play a very useful role at ancient as well as modern time. It is critical to use these plants and cultural knowledge before it is lost. Their inherent therapeutic properties are fully manifested and utilized during this systematic process, resulting in the desired beneficial effects upon the patient. Since the specific actions of these herbs are now well-known, the particular combination of these herbs to be used at any stage of the Panchakarma process can be customized for each patient depending on his specific diseases, body constitution, etc. we suggested following important tasks that may be carried out in this context.

- Search for medicinal plants continues
- Especially in tropical rain forests
- Time is critical before plants are lost and cultural knowledge of the plants are lost
- Same is true among native peoples everywhere includes Native Americans

Physiological action of Withania somnifera

- Diverse effects with the most pronounced on the nervous system
- Can also have psychological effects
- Some medicinally important, some psychoactive, some poisonous
- Often a fine line between a medicinal and toxic dose
- Common alkaloids: caffeine, nicotine, cocaine, morphine, quinine, ephedrine
- Vincristine and vinblastine major chemotherapeutic agents
  a) Vincristine has been especially effective for treating acute childhood leukemia, often with 99% remission rates
  b) Vinblastine has been especially effective for treating Hodgkin's disease
- Both alkaloids also used for other types of cancer.

Physiological action of Tinospora cordifolia

- Can also have psychological effects
- Some medicinally important, some psychoactive, some poisonous
- Often a fine line between a medicinal and toxic dose
- Common alkaloids: caffeine, nicotine, cocaine, morphine, quinine, ephedrine

Physiological action of Aloe vera

- Also widespread in the plant kingdom and second in importance as medicines.
- Have sugar molecule (glyco-) is attached to the active component
- Active portion variable, sugar is glucose
- By the active component: cyanogenic glycosides.

4. Conclusion

It is necessary to make an ardent, systematic and organized effort to preserve, propagate, collect, store and manufacture these manufacture the chemical content of various ayurvedic medic plants, according to prescribed methods only. Therefore it is a very important work to clarify the main active ingredients which can be extracted from medicinal plants. Moreover, their role in the treatment of present diseases, and how they can be used to produce or synthesize more effective drugs.

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