

## NATURAL MEDICAMENTS IN OPHTHALMOLOGY: POTENT AND HIDDEN SOURCE FOR OCULAR DISORDERS

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### ABSTRACT

Ophthalmology is one of the emerging branches in science that is reaching to the sky in context to its diagnostic, and treatment procedure and surgical inventions, although we are lagging behind in making complete cure of the new emerging diseases, like retinopathies, refractive errors, corneal pathologies, that create hindrance in our goal of eradicating blindness as these are increasing day by day .so the world is facing back towards the ancient science that has better

medications and easy cost effective cure for such diseases, ayurveda science rely on the herbs for the treatment of diseases, so here we just go through very common herbs that are beneficial in eye diseases in on or the other way.

**KEYWORDS:** ayurveda, herb, shalakya, ocular diseases.

### INTRODUCTION

As here in this article we are focusing over the herbs, we can very well see the use of herbs since very ancient time either through the use of ancient vaidyas or in the form of traditional mythologies. The herbs are being utilized for human benefits. herbs now a days are researched in laboratories to find out the basic causes of their effects. they are proving as one stop solution to all the present health ailments.<sup>[1]</sup> The herbs as a whole or as part are being used in different diseases, so here we go through some very common and simple herbs that are extensively used in ayurvedic ophthalmology.

In context with all that we are mainly focusing over ocular disorders that can be effectively cured by the use of certain herbs as described in our ancient texts as well as we also go through the ongoing researches that are undergoing regarding pharmacology of particular herb to provide the scientific basis it that particular drug.

**AMALAKI** -- *Emblca officinalis*, Family.-Euphorbiacea. Its constituents - Ascorbic acid and tannins.<sup>[2]</sup>

#### PROPERTIES AND ACTION

Rasa: Madhura, Amla, Katu, Tikta, Kashaya

Guna: Laghu, Ruksha

Virya: sheeta

Vipaka: Madhura

Karma: Tridoshajit, Vrsya, Rasayana, Chaksushya

**VIBHITAK** *Terminalia belerica* Roxb. Family---. Combretaceae, its constituents are Gallic acid, tannic acid and glycosides.<sup>[3]</sup>

#### PROPERTIES AND ACTION

Rasa: Kashaya

Guna: Laghu, Ruksha

Virya: ushna

Vipaka: Madhura

Karma: Chakshusya, Keshya, Kaphapittajit, Bhedaka, Krmighnana, Kasahara

**HARITAKI** *Terminalia chebula* Retz, Family-. Combretaceae, its constituents are Tannins, anthraquinones and polyphenolic compounds.<sup>[4]</sup>

#### PROPERTIES AND ACTION

Rasa: Madhura, Amla, Katu, Tikta, KaÀjya

Guna: Laghu, Ruksha

Virya: ushna

Vipaka: Madhura

Karma: Chakshushya, Dipana, Hrdya, Medhya, Rasayana, Anulomana.

Triphala has its main action as tridoshhara. in addition to this it possess ushna, and ruksha guna thus it helps in treating the srotodushticaused by abhishyandi food matters. triphala helps in maintaining the homeoistasisin the body and eye as a whole, as it possess deepana, pachana, anulomana properties. it helps in stimulating agni and hence producethe proper essence of food rasa dhatru and so on, thus nourishesall types of pitta dosha especially alochaka pitta in context to eyes and being anulomaka in nature it helps in proper elimination of wastes. thus having chakshushya and rasaya properties.

**GUDUCHI** - *Tinospora cordifolia*, Family-, Menispermaceae, Its constituents are Terpenoids and alkaloids.<sup>[5]</sup>

**PROPERTIES AND ACTION**

Rasa: Tikta, Kashaya

Guna: Laghu

Virya: Ushna

Vipaka: Madhura

Karma: Balya, Dipana, Rasayana, Sangrahi, Tridosashamaka, Raktashodhaka, Jvaraghna.

**Immunomodulatory property-** Active compounds 11-hydroxymustakone, N-methyl-2-pyrrolidone, N-formylannonain, cordifolioside A, magnoflorine, tinocordiside and syringin has been reported to have potential immunomodulatory and cytotoxic effects They have been reported to function by boosting the phagocytic activity of macrophages, production of reactive oxygen species (ROS) in human neutrophil cells. **Anti-toxic effects** *Tinospora cordifolia* extracts have been reported to scavenge free radicals generated during aflatoxicosis. It exhibited protective effects by lowering thiobarbituric acid reactive substances levels and enhancing the GSH, ascorbic acid, protein, and the activities of anti-oxidant enzymes viz., **Anti-oxidant activity** of stem of this plant methanol extracts administered orally increased the erythrocytes membrane lipid peroxide and catalase activity.

**HARIDRA--** *Curcuma longa*, Family-.Zingiberaceae, its constituents - Essential oil and a colouring matter (curcumin).<sup>[6]</sup>

**PROPERTIES AND ACTION**

Rasa: Katu, Tikta

Guna: Ruksa

Virya: Ushna

Vipaka: Katu

Karma: Krimighna, Kandughna, Varnya, Vishghana, Kaphapittanut, Pramehanashaka.

Studies reveal that haridra has anti bacterial, anti inflammaotory anti carcinogenic role, useful in conjunctivitis. The most commonly isolated bacteria included *Porphyromonas* sp., *Bacteroides fragilis*, *Peptostreptococcus*, and *Staphylococcus aureus*. Sodium hypochlorite and *C. longa* (turmeric) showed good antibacterial effect and were effective against most of the isolated bacteria.

**KARANJA** *Pongamia pinnata*, Family-. Leguminosae, its constituents are- fixed oil, flavones and traces of essential oil.<sup>[7]</sup>

**PROPERTIES AND ACTION**

Rasa: Katu, Tikta

Guna: laghu

Virya: ushna

Vipaka: Katu

Karma: Krimijit, Kusthaghna, Kaphavataghna, Vranshodhana.

Chemical composition-- fixed oil, flavones, essential oil. Seeds contain viscid yellow oil 27 percent which is known as Pongamia oil and the oil becomes solid at 80 centigrade. Bark yields a bitter alkaloid which is soluble in ether, alcohol and water. Pongamia oil (Karanja taila) is 27-29 percent. It contains karanjin which an active constituent and germicidal agent. Pongamol is also found.

**LODHRA--** *Symplocos racemosa*, Family Symplocaceae, Its constituents –are Alkaloids (loturine and colloturine) and red colouring matter.<sup>[8]</sup>

### PROPERTIES AND ACTION

Rasa: Kashaya

Guna: Laghu

Virya: shita

Vipaka: Katu

Karma: Chakshushya, Grahi, Kaphapittanut

*S. racemosa* is important Indian traditional drug used in many Ayurvedic and herbal formulations for treatment of liver as well as uterine disorders and leucorrhea. Majority of phytopharmacological reports are on stem bark of the plant which include anti-cancer, hepatoprotective, anti-oxidant, anti-androgenic effect, anti-inflammatory, wound healing activity and anti-diabetic effects. Phytochemical studies indicated presence of many phenolic glycosides like symplocoside, triterpenoids like betulinic acid, acetyloleanolic acid and oleanolic acid and flavonoids like quercetin which might have contributed to the observed protective effects.

**PUNARNAVA** *Boerhaavia diffusa*, Family-Nyctaginaceae its constituents – Alkaloid- (Punarnavine).<sup>[9]</sup>

### PROPERTIES AND ACTION

Rasa: Madhura, Tikta, Kashaya

Guna: Ruksha

Virya: Ushna

Vipaka: Madhura

Karma: Anulomana, shothahara, Mutrala

*Boerhaavia diffusa* is a plant of rasayana category as per ayurvedic claims. It is reported to possess antiaging, disease prevention, and life strengthening activities which hold enormous influence in disease burden and affordability/availability of healthcare in the world.

Objective. This paper has been compiled to comment on the studies reported for BD to highlight its chemical and therapeutic potential along with its ethnopharmacological considerations.

It possess antimicrobial, anti inflammatory, anti fungal, antifibrinolytic, immunomodulatory, anti cancer hepatoprotective, diuretic and antioxidant property as done in researches.

**VASA--** Adhatoda vasica Nees (Family-.Acanthaceae. Its CONSTITUENTS - Alkaloids and essential oil.<sup>[10]</sup>

### PROPERTIES AND ACTION

Rasa: Tikta, Kashaya

Guna: Laghu

Virya: sheeta

Vipaka: Katu

Karma: Hridya., Kaphapittahara, Raktasangrahika, Kasaghna

It possess anti llergic, anti microbial, anti asthmatic, wound healing, anti ulcer anti tubercular, property.

**MULETHI** Glycyrrhiza glabra (Fam. Leguminosae) its CONSTITUENTS - Glycyrrhizin, glycyrrhizic acid, glycyrrhetic acid, asparagine, sugars, resin and starch.<sup>[11]</sup>

### PROPERTIES AND ACTION

Rasa: Madhura

Guna: Guru, Snigdha

Virya: sheeta

Vipaka: Madhura

Karma: Balya, Chakshushya, Vrnya, Varnya, Vatapittajit, Raktaprasadana.

High content of phenolic component in ethanolic extract of Liquorice (*Glycyrrhiza glabra L*) is responsible for its powerful antioxidant activity by means of significant free radical scavenging, hydrogen-donating, metal ion chelating, anti-lipid peroxidative and reducing abilities It is reported that glycyrrhetic acid in liquorice extract gives anti-inflammatory effect similar to glucocorticoids and mineralocorticoids According to *Invitro* studies, glycyrrhizic acid inhibits all factors responsiblefor inflammation. It inhibits cyclooxygenase activity and prostaglandin formation (specifically prostaglandin E2). It increasesproduction of TCD69 lymphocytes and macrophages fromhuman granulocytes. According to *in vivo* studies, liquorice root extract was found to prevent the rise in the amount of immune-complexes related to autoimmune diseases.

**JATĪ** - *Jasminum officinale* Linn. (Fam. Oleaceae).<sup>[12]</sup>

CONSTITUENTS - Resin, Salicylic Acid, Alkaloid (Jasminine) and Essential Oil.

### PROPERTIES AND ACTION

Rasa: Tikta, Kashaya                      Guna: Laghu, Mridu, Snigdha

Virya: Ushna                                  Vipaka: Katu

Karma: Chakshushya, sirovirecana

Chemical Composition--Flower yield in aromatic essential oil, Benzyl acetate is the chief constituent of the oil from the flower which also contains methyl anthanilate and 1-lihalool. The essential oil of *Jasminium* contains methyl anthranilate, indol, benzyl alcohol, benzyl acetate and the terpenes linalol and linalyl acetate.

**MANJISTHA**-- *Rubia cordifolia* Linn. (Fam. Rubiaceae). CONSTITUENTS – Glycosides

### PROPERTIES AND ACTION<sup>[13]</sup>

Rasa: Madhura, Tikta, KaṂjya                      Guna: Guru

Virya: ushna    Vipaka: Katu

Karma: Krimighna, Kaphapittashmaka, vrisya, Varnya, Sothaghna, Pramehaghna, Stambhan, Artavajanana, Rasanyana, it is traditionally used as an antiinflammatory, antiseptic and galactopurifier, but its anticancer properties. The ameliorative effect of the *Rubia cordifolia* methanol extract on N-nitrosodiethylamine-induced experimental hepatocellular carcinogenesis in rats.

**MUSTA (Rhizome)** consists of dried rhizome of *Cyperus rotundus* Linn. (Fam. Cyperaceae);

CONSTITUENTS - Volatile Oil.<sup>[14]</sup>

### PROPERTIES AND ACTION

Rasa: Katu, Tikta, Kashaya                      Guna: Laghu, Ruksha

Virya: sheeta    Vipaka: Katu

Karma: shothahara, Dipana, Grahi, Krmighna, Pacana, Vishaghna, Pittakaphahara, Sthoulyahara, Tvakado Ḃahara, Jvaraghna.

Phytochemical and pharmacological studies revealed the significance of *C. rotundus* as an antiandrogenic, antibacterial, anticancerous, anticonvulsant, antidiabetic, antidiarrheal, antigenotoxic, anti-inflammatory, antilipidemic, antimalarial, antimutagenic, antiobesity, antioxidant, anti-uropathogenic, hepatoprotective, cardioprotective, neuroprotective and

nootropic agent. This is the most investigated plant worldwide due to the higher concentration of active ingredients in the form of essential oils, phenolic acids, ascorbic acids, and flavonoids in the tuber and rhizomes. Unfortunately, this significant plant species has not been assessed under improved cultivation conditions with the aim of conservation in natural habitats and high quality.

**SHIGRU**—*Moringa olifera*, moringaceae family,

Properties ---Guna-laghu, ruksha, tikshna. Rasa—katu, tikta.

Vipak-katu Virya –ushna.

Gana –krimighna, shirovirechanaopaga charak. Bhav prakash–chakshyshya.

*Moringa oleifera* leaves are a rich source of antioxidant compound. The authors found that different leaves extracts inhibited 89.7%–92.0% peroxidation of linoleic acid and had a scavenging activity on superoxide radicals in a dose-dependent manner. Kooltheat *et al*] found that the ethyl acetate extract of *Moringa oleifera* leaves was able to inhibit human macrophage cytokine production (TNF- $\alpha$ , IL-6 and IL-8) induced by extract of cigarette smoke and by LPS, similar to Aspirin.<sup>[15]</sup>

**NEEM**—*Azadirachta indica*, meliaceae family.

Properties -- Guna-laghu Rasa-tikta, kashya. Vipaka –katu.

Virya –sheeta. Karma –kapha pitta shamaka

Gana –kandughna, su. Netryam –bhav prakash, Netrarogan vinashayaet, nayaamay Gnam, kaidev nighantu. **Neuroprotective Effects** A study was performed to investigate the neuroprotective effects of *Azadirachta indicaleaves* against cisplatin- (CP-) induced neurotoxicity and results showed that morphological findings of neem before and after CP injection implied a well-preserved brain tissue. No changes, in biochemical parameters, were observed with neem treated groups.<sup>[16]</sup> **Effect of Neem and Its Constituents on Angiogenesis** Angiogenesis is complex process that supplies blood to the tissue and that is essential for growth and metastasis of tumour. Angiogenesis is regulated by activators as well as inhibitors. The development of antiangiogenic agents to block new blood vessel growth is crucial step in the inhibition/prevention of tumour growth. Medicinal plants and their ingredients play role in prevention of tumour growth due to their antiangiogenic activity.

## CONCLUSION

From ancient days herbal medicines are in continuous use and other are being tested in terms of scientific parameter and also used to treat various ailments. Thus herbal medicines have the potent and hidden pharmaceutical treasure that can be explored for the benefit of human beings. Since very ancient times, these plants are being utilized in tremendous way through the knowledge of ayurvedic science. In recent days also, there are so many contemporary researches are ongoing that prove the hidden facts of the herbs that are already being mentioned in our ancient texts.

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