

A REVIEW ON EFFECT OF TULSI (OCIMUM SANCTUM) IN HUMAN AS A MEDICINAL PLANT

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ABSTRACT

The Tulsi or Basil or holy basil, a medicinal herb, aromatic, culinary, native in India and Southeast Asia, it contains different chemicals as well as phytochemicals such as rosmarinic acid, eugenol, carvacrol, linalool, oleanolic acid, β -caryophyllene etc. utilized as ayurveda practice and siddha practice. The Tulsi is characterized by antioxidant, anti-inflammatory, anti-aging properties, etc that provides the treatment of asthma, anxiety, bronchitis, flu, respiratory infections, high sugar and cholesterol level, etc. There is no too much data on side of effects of the *Ocimum sanctum*, yet it is prominent tuli containg eugenol in hidh dose is more toxin causing lever damage, nausea, diarrhea, rapid heartbeats etc. This article around the morphology, chemical, uses, how to work in human beings, side effects, toxicity of tulsi or *Ocimum sanctum*.

Key Words:

Ocimum sanctum, chemical composition, effects.

INTRODUCTION

The medicinal plants are considered those the roots, leaves, seeds, bark or other parts are utilized in therapeutic or treatment purpose in defense mechanism of human. The medicinal plants or medicinal herbs are also containing phytochemicals that has potent role in defense mechanism. The human body consist of different systems e.g. digestive system, respiratory system, renal system, endocrine system, nervous system reproductive system, immune system, etc out of them nervous system and endocrine system considered as controlling system of body and immune system as protective system against antigen or foreign particles where medicinal plants has important role in acceleration of protective mechanism or immune system. The medicinal plants or medicinal herbs e.g. amla, ashok, bael, brahmi, sarpa gandha, neem, senna, kalmegh, tulsi etc. have defense properties against fungi, insects, diseases, etc. The common three types of tuli identified are e.g. *Ocimum tenuiflorum* or *Ocimum sanctum* L. has two types are sri tulsi or green tulsi and Krishna tulsi or shyama tulsi, *Ocimum gratissimum* or vana or wide or forest tulsi, differ from each others in their presence of eugenol, colour, chromosomal number etc (Negar Jamshidi, 2017). The tulsi is an aromatic plant, its family lamiaceae, its scientific name *Ocimum tenuiflorum* and synonym *Ocimum sanctum*. The tulsi or holy basil or tulasi is perennial shrub, its height one metre, its leaves is fragrant and colour green or purple, flowers are white purple and tubular, the fruits produce many numbers of seeds (Melissa Petruzzello, 2019). According to the shastra tulsi plant is more significant in Hinduism by keeping / planting in the direction of north-east yet there benefits in health is not clear till now and no more study results about it (Vastu Shastra, 2019). The biologically active substances are present in the herbs are terpenoids, glycosides, alkaloids, polyphenols etc and different elements e.g. Zn, Co, Cr etc accelerates the pharmacological action in human (M. Ya. Lovkova et al, 2001). There is some evidence on holy basil has survival property in animals for suppress the cancer. There are many numbers of uses of tusi as well as its chemicals or its extracts are anxiety, stress, asthma, headache, weight loss, viral hepatitis, malaria, insomnia etc (Web MD, 2020).

TAXONOMY OF TULSI

The term taxonomy derives from Greek word taxis and nomia that means arrangement and method, the taxonomy is useful for study of biodiversity. Kingdom Plantae – Plants, Sub-kingdome Tracheobionta – Vascular plants, Superdivision Spermatophyta – Seed plants, Division Magnoliophyta – Flowering plants, Class Magnoliopsida – Dicotyledons, Sub class Asteridae, Order Lamiales, Family Lamiaceae – Mint Family, Genus *Ocimum* L. – basil, Species *Ocimum tenuiflorum* L. – holy basil (NRCS, 2019).

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MORPHOLOGY AND DISTRIBUTION OF TULSI

The height of tulsi plant is not more than 4 – 5 feet. This traditional plant is erect and it has several branched that is like dwarf shrub, the leaves are oval shaped, petioled, green colour and flower are purple in between whorls. The seed of it's germinated easily. The tulsi plant also may grow easily in moist soil globally. Linneaus isolate five species of *Ocimum* 1753 (Felix Bast, 2014).

CHEMICAL COMPOSITION OF TULSI

The tulsi is a medicinal native plant and use in ayurveda. The tulsi oil contain major pharmacologically active chemicals are identified are methyl eugenol or 1-hydroxy-2-methoxy-4-allylbenzene, (E)-caryophyllene and β -elemene (P.K.Awasthi, 2013). The others phytochemicals of tulsi leaf are linalool or 3, 7-dimethylocta-1,6-dien-3-ol, limatrol, caryophyllene, carvacrol or 5-isopropyl-2-methylphenol etc. The seeds of tulsi also contains fatty acids, sitosterol and contain sugars e.g. xylose and polysaccharides (Priyabrata Pattanayak et al, 2010).

APPLICATION OR USES OF TULSI

The most common medicinal plant is tulsi or holy basil also refers as Queen of herbs in India. The leaves and roots are the most useful parts of the plant. The blood glucose level, lipids and blood pressure maintain by herbal effect of tulsi and it also can suppress the psychological stress and immunological stress. The different study in animals and humans, result focused on it has antimicrobial, anti-inflammatory, adaptogenic, cardioprotective properties (Negar Jamshidi, 2017). The effectiveness of holy basil or tulsi as well as use in the treatment of different disease of human e.g. anxiety or mental stress, diarrhea, obesity or over body weight, asthma, bronchitis, fever, insomnia, viral hepatitis, headache, tuberculosis, malaria, influenza, gingivitis, etc (Web MD, 2020).

PHARMACOLOGICAL ACTION OF TULSI

There are so many activity are found in the tulsi oil such as antimicrobial, anti-oxidant, anti-inflammatory, radioprotective, cardioprotective, anti-allergic, CNS deoressent, anti-asthmatic, anti-thyroid, anti-fertility, anti-ulcer, anti-diarrheal, anti-hypercholesterolemia, memory enhancing, chemopreventive etc. The pharmacological action of tulsi on Immunity : Immunity is the protective mechanism against antigen or pathogen or foreign particles in body, there are different types e.g. innate and acquired immunity, innate immunity is formed from fetal life and resist in whole life but the acquired immunity also developed after birth and after entering the antigen in blood circulations. The acquired immunity is of cell mediated and humeral, out of them cell mediated immunity or CMI is mediated by T lymphocyte on the other hand humeral immunity is formed by B lymphocyte. The phytochemicals of tulsi oil also provide the humeral immunity that result it also uses as suppressant of bacterial growth, decrease the fungal growth, protozoal growth, viral growth (Marc Maurice Cohen, 2014). From an experiment it is proved, tulsi has protective activity against different heavy metals e.g. As, Pb, Cr etc, prevent chromosomal damage and reduce oxidative stress inducing by radiation in an experimental animals. Tulsi also use for treatment of various diseases e.g. infection of skin, tuberculosis, fungal infections, malaria, filariasis, typhoid etc due to its antifungal, antimicrobial, ant infections activity (Marc Maurice Cohen, 2014). The tulsi has increase rate of antibody formation and mediate both cell mediated immunity or CMI and humeral immunity by releasing mediators of hypersensitivity reactions (Govind Pandey and Madhuri, 2010). Tulsi leaf extract containg chemicals shown anticancer and antitumor properties in didderent experimental animals (Sunita Verma, 2016).

DOSAGE OF TULSI

The tulsi or *Ocimum sanctum* also a medicinal plant, used in two ways e.g. tulsi extract or supplementary and drugs. The drugs contain tulsi has two types as powder and tablet. For adults advice to intake 3 – 5 leaves of tulsi per day (500 – 600 mg) and children above 3 year 2- 3 leaves per day. Tulsi tablet 1-2 (500 – 600mg) per day after meal advise to take for adults for medication or treatment purpose (Jackson, 2018).

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SIDE EFFECTS OF TULSI

Tulsi plants has some time harmful due to excess use without measure taking any dose. The some side effects or problems are dangerous for embryo in pregnancy period, tulsi contain estrogen helps in contraction of uterus that is reduces the development of embryo. Tulsi also hamper menstrual cycle as well as irregular periods of woman due to presence of ursolic acid in tulsi. Tulsi can cause of too much low level of blood sugar in diabetic patients that is harmful. Tulsi has affects in reproductive glands e.g. decrease the weight of gonads, suppress spermatogenesis as well as decrease sperm count that may cause of infertility. WHO state that regular intake for long periods leaves of tulsi may cause of damage of hepatic cells due to presence of eugenol while use of it for release of pain (TNN, 2018). There is no more research work about the side effects of regular long term use of tulsi. The presence of eugenol substance of tulsi may cause of nausea, diarrhea, rapid heartbeats, liver damage due to excessive use of tulsi (Cathy Wong, 2020). The advice to take tulsi oil by following proper prescription of doctors.

CONCLUSION

There are several medicinal plants, out of them tulsi is more active and powerful plant, has several properties which helps for major treatment of various diseases e.g. skin infection, fungal treatment, psychological stress, microbial infection etc, it may be sometimes harmful due to long periods use in high or excessive dose. The phytochemicals of tulsi also will more helpful in formation of drugs as well as in treatment purpose.

REFERENCES

1. Negar Jamshidi and Marc M. Cohen, The clinical efficacy and safety of tulsi in humans: a systematic review of the literature, Evidence-based complementary and alternative medicine, Hindawi, 2017
2. Melissa Petruzzello, Holy basil herb, Britannica, 26th july, 2019.
3. Vastu Shastra, Vastu tips for home: Never put Tulsi plant in this direction in your abode, India TV lifestyle Desk New Delhi, 4th August, 2019.
4. M. Ya. Lovkova, G. N. Buzuk, S. M. Sokolova, N. I. Kliment'eva, Chemical features of medicinal plants (review), Springer link, May 2001.
5. Web MD, Holy basil, 2020.
6. Natural Resources Conservation Service, Classification, United States Department of Agriculture, 2019.
7. Felix Bast, Pooja Rani and Devendra Meena, Chloroplast DNA Phylogeography of Holy Basil (*Ocimum tenuiflorum*) in India Subcontinent, Hindawi The Scientific World Journal, 2014.
8. P.K.Awasthi and S. C. Dixit, Chemical Composition of *Ocimum sanctum* Shyama and *Ocimum sanctum* Oils from the Plains of Northern India, Journal of Essential Oil Bearing Plants, volume -10, Issue - 4, 2013.
9. Priyabrata Pattanayak, Pritishova Behera and Sangram K. Panda, *Ocimum sanctum* Linn. A reservoir plant for therapeutic application: An Overview, Pharmacognosy Reviews Wolters Kluwer—Medknow Publication, 2010.
10. Negar Jamshidi and Marc M. Cohen, The Clinical Efficacy and Safety of Tulsi in Humans: A systematic Review of the Literature, Evidence-Based Complementary and Alternative Medicine, Hindawi, 2017.
11. Marc Maurice Cohen, Tulsi-*Ocimum sanctum*: A herb for all reasons, Journal of Ayurveda and Integrative Medicine, Elsevier, 2014.
12. Govind Pandey and Madhuri, Pharmacological activities of *Ocimum sanctum* (Tulsi): A review, International Journal of Pharmaceutical Science Review and Research, 2010.
13. Sunita Verma, Chemical constituents and pharmacological action of *Ocimum sanctum* (Indian holy basil-Tulsi), The Journal of Phytopharmacology, 2016.
14. TNN, Shocking: Eating Tulsi Leaves can have these 5 side effect!, Entertainment Times, 2018.
15. Cathy Wong, The health benefits of tulsi, Verywell Health, 2020.
16. Jackson, Tulsi: Benefits, uses, dosage, side effects, price, CASH KARO, 2018.