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ASTHMA AND AYURVEDA

ABSTRACT

Ayurveda is an ancient Indian system of medicine based on herbal treatment. Ayurveda means Science of Life. According to the definition Science refers to a system of acquiring knowledge, Knowledge that attained through study or practice. Ayurveda told the laws of nature governing the health of living system and treatment modalities based on these laws. Due to its intrinsic qualities, unique and holistic approaches as well as its accessibility and affordability, Ayurveda continues to be the best alternative care available for the majority of the global population. It is best treatment methodology for chronic disabling diseases like Bronchial asthma. This paper discuss about few herbs having potent anti-asthmatic potentials.

Key words: Asthma, Ayurveda, Anti-Asthmatic herbs.

INTRODUCTION

Science gives us wisdom with vision to defeat the most fatal diseases. History is evidence where man overpower the diseases like smallpox, polio etc. The journey of victory does not stop till the goal is achieved. To make human being healthy is a big task that compels scientist to search regularly new alternatives and better treatment for still incurable diseases. One such disease is Bronchial Asthma. It is said that Asthma can't be cured it can only be prevented.

Among several respiratory diseases affecting human, bronchial asthma is the most common disabling disease that can seriously impede one's ability to breathe, and suddenly rob the individual of the most important nutrient of all - oxygen. According to the definition utilized by many physicians, asthma is a syndrome, which unlike a disease cannot be attributed to one specific cause, but rather to several causes. Most commonly, an asthmatic attack is described as an allergic reaction of the respiratory tract leading to a drastic narrowing and inflammation of the air ways, triggered by a variety of air pollutants commonly described as allergens. The symptoms associated with asthma are related to the pharmacologically active substances released from the granules in the process of mast cell degranulation. The active substances include Histamine, Serotonin (5-Hydroxytryptamine), Eosinophil Chemotactic Factor of Anaphylaxis (ECF-A), Slow Reacting Substances that induce Anaphylaxis (SRS-A) made of leukotrienes, and Platelet Activating Factor (PAF)¹.

Bronchial asthmatic patients suffer from respiratory distress when they are exposed either directly to histamine and other autacoids or indirectly to antigens such as egg albumin that activate formation of antibodies, which upon their interaction lead to mast cell disintegration to cause release of histamine. Acetylcholine also causes bronchoconstriction, leading to further complications in these patients².

According to World Health Organisation (WHO) estimates 300 million people suffer from Asthma, 255, 000 people died of Asthma in 2005 (WHO 2004) and over 80% of Asthma deaths are reported from low and lower-middle income countries³. Asthma creates a substantial burden on individuals and families as it is more often under-diagnosed and under-treated.

In India, an estimated that 57,000 deaths were attributed to Asthma in 2004 (WHO 2004) and it was seen as one of the leading cause of morbidity and mortality in rural India.

The management of Bronchial asthma by modern medicine prove to be beneficial by producing instant relief in the patients and act as life saving agent in acute emergency condition such as in 'Status Asthmaticus' On the other hand, long term use of all these drugs produces serious toxic effects such as - Palpitation, Nervousness, Bronchospasm, Throat irritation and hoarseness of voice, acidity etc. Despite the availability of a wide range of anti-asthmatic drugs, the relief offered by them is mainly symptomatic and short lived. Moreover their side effects are also quite disturbing. Hence a continuous search is needed to identify effective and safe remedies to treat bronchial asthma⁴.

Scope of Herbal medicine in the management of Asthma:

Ayurveda is the Ancient Indian medical science based on herbal remedies. Due to its intrinsic qualities, unique and holistic approaches as well as its accessibility and affordability, Ayurvedic system of medicine continues to be the best alternative care available for the majority of the global population. Plants constitute the centre-piece of therapy in this system of medicine for restoring or maintaining the well-being of the people (WHO, 2001).

The treatment of diseases with pure pharmaceutical agents is a relatively modern phenomenon. Drugs derived from natural products are usually secondary metabolites and their derivatives. The purpose of these compounds in the organisms and their formation was little understood or investigated, primarily due to the lack of appropriate techniques and structural theory.

Therefore, it should be of interest to ascertain just how important medicinal plants are throughout the world when used in the form of crude extracts. About 3.5 to 4 billion people in the world rely on plants as sources of drugs.

Pharmacological and phytochemical insights into several plants have led either to the isolation of novel structures for the manufacture of new drugs or to templates that served for the production of synthetically improved therapeutic agent. Furthermore, the discovery of drugs such as quinine, vincristine, digoxin and digitoxin, emetine, artemisinin, etc., from medicinal plants signify the huge potential that still exists for the production of many more novel pharmaceuticals.

Table Showing Few Anti-Asthmatic Herbs

Plants	Part used	Extract/ Active principle	Probable mechanism of action
Albizzia lebbeck	Stem bark	Aqueous extract M.C.-Catechin	Mast cell stabilizing effect ⁵ , antiallergic & antioxidant activity ^{6,7} .
Cyprus rotundus	Root	Aqueous extract/ alcoholic extract M.C.-Sesquiterpenes	Anti-Inflammatory ⁸ , Antimutagens ⁹ and Radical scavengers, Antioxidant activities.
Solanum xanthocarpum	Whole herb	Aqueous/alcoholic extract M.C.-Salasodin, Apigenin, Stigmasterol,	Bronchodilator ¹⁰ , Antiallergic property ¹¹ , Anti-inflammatory

		Carpesterol, Diosegenin	
Clerodendrum serratum	Root	Aqueous / alcoholic extract M.C.- Apigenin-7-glucoside	Antihistamine ¹² , antiallergic & bronchodilator activities ¹³
Hedychium spicatum	Rhizome	Ethanollic extract M.C.- Hedychenone a terpene	Anti-inflammatory ¹⁴ , analgesic effect, reduce total eosinophil count ¹⁵ .
Inula racemosa	Root	Aqueous / alcoholic extract. M.C.- Inulin	Antihistaminic ¹⁶ , Anti- serotonergic.
Piper longum	Fruit, Root	Aqueous / alcoholic extract M.C.- Piperine	Anti-allergic ¹⁷ , Anti-inflammatory, Anti-tubercular activity ¹⁸ , Antispasmodic.
Adhatoda vasica	Leaves, whole herb	Aqueous / alcoholic extract M.C.- Vasicine, Vasicinone	Bronchodilator ¹⁹ , Respiratory stimulant, Antiasthmastic ²⁰ .
Picrorrhiza kurroa	Root	Aqueous / alcoholic extract M.C.- Androsin, Picroliv	Anti-histaminic & Anti-PAF ²¹
Terminalia Chebula	Fruit	Aqueous / alcoholic extract M.C.- β - sitosterol	Antioxidant ²² , antibacterial & Antiallergic ²³ .
Curcuma longa	Rhizome	Aqueous / alcoholic extract M.C.- Curcumin	Antioxidant, Antiinflammatory ²⁴ , Antiallergic , & nuclear transcription factor (NF)-kB blocker ²⁵ .

Emblica officinalis	Fruit	Aqueous / alcoholic extract M.C.- Vit. C, Phyllantine, Phyllantidine	Antiinflammatory, Antitussive ²⁶ & Antioxidant ²⁷ .
Ocimum sanctum	Leaves	Aqueous / alcoholic extract M.C.- Eugenol, β -caryophyllene	Anti-histamine ²⁸ , anti-inflammatory ²⁹ , antioxidant ³⁰ ,immunomodulator.
Terminalia belerica	Fruit	Aqueous / alcoholic extract M.C.-	Have antiperoxidative activity and inhibited lipid peroxide formation by scavenging hydroxyl and superoxide radicals in vitro ³¹ .
Zingiber officinale	Rhizome	Aqueous / alcoholic extract M.C.- Gingerols	anti-inflammatory, potent inhibitor of inflammatory mediators such as prostaglandins and leukotrienes ³² .

CONCLUSION

Asthma is a chronic inflammatory disease of airways in which inflammation persist continuously with the episodes of acute exacerbations. Asthmatic patient has to take medicine for long duration and intake of bio- incompatible drugs for long duration further deranged body immunity and worsen the pathology. In such circumstances bio-compatible herbs provide better solution. Herbs with cost effectiveness, high efficacy, easy availability and least side effects give an opportunity for research and hope for complete cure of disease.

REFERENCES

1. Laberge S. Increased expression of interleukin-16 in bronchial mucosa of subjects with atopic asthma. Am J Respi Cell Mol Biol. 1997, 17(2):193-202.
2. Rostom H. and Makonnen E. The protective effect of Nigella sativa against respiratory distress in normal and sensitized guinea pigs. Ethiop J Health Dev. 1996,10(1):47-52.
3. Braman SS. The global burden of asthma. Chest 2006; 130: 4S-12S.
4. Barnes P.J. Current therapies for asthma: Promise and limitations. Chest 111(2) Suppl. 2004:17S-26S.
5. Barua, CC; Gupta, PP; Patnaik, GK; Kulsrestha, DK; Dhavan, BK. Antianaphylactic and mast cell stabilizing activity of Shirisha. Indian Vet Med. J 1997,21:127-132.

6. Pichairajan Venkatesh et al ; Anti-allergic activity of standardized extract of Albizzia lebbeck with reference to catechin as a phytomarker; Immunopharmacol Immunotoxicol 32(2):272-6 (2010).
7. Reshmi C. R, Venukuar M .R and Latha M.S. Antioxidant activity of Albizzia lebbeck (linn.) benth. in alloxan diabetic rats. Indian J Physiol Pharmacol. 2006; 50 (3) : 297–302.
8. Gupta MB, Palit TK, Singh N, Bhargava KP. Pharmacological studies to isolate the active constituents from Cyperus rotundus possessing anti-inflammatory, anti-pyretic and analgesic activities. Indian J Med Res. 1971 Jan;59(1):76-82.
9. Kilani Soumaya, Ben Ammara Ribai, Bouhle Ines. Investigation of extracts from (Tunisian) Cyperus rotundus as antimutagens and radical scavengers. Environmental Toxicology and Pharmacology 2005; 20: 478–484.
10. Govindan S, Viswanathan S, Vijayasekaran V, Alagappan R. Further studies on the clinical efficacy of Solanum xanthocarpum and Solanum trilobatum in bronchial asthma. Phytother Res. 2004 Oct;18(10):805-9.
11. Bector, NP, Puri, AS. Solanum xanthocarpum (Kantakari) in chronic bronchitis, bronchial asthma, and non-specific unproductive cough. J Ass Physicians India.1971, 19(10): 741-744.
12. Gupta SS. Development of antihistamine and antiallergic activity after prolonged administration of a plant saponin from Clerodendron serratum. J Pharm Pharmac 1968;20:801-2.
13. Hazekamp A., Verpoorte R. Isolation of a Bronchodilator Flavonoids from the Thai Medicinal Plant Clerodendrum petasites. J Ethnopharmacology. 2001; 78: 45-49.
14. Bishit GS, Awasthi AK, Dhole TN. Antimicrobial activity of Hedychium spicatum. Fitoterpia 2006; 77(3):240-42.
15. Chaturvedi GN, Sharma BD. Clinical studies on Hedychium spicatum: An antiasthmatic drug. J Res Indian Med 1975; 10(2): 6.
16. Singh N, Nath R, Gupta MC, Kohli RP, An experimental evaluation of anti-Asthmatic potentialities of Inula racemosa, Quarternary Journal crude drug research.1980, 18 (2): 89-96.
17. Dahanukar SA, Karandikar SM. Evaluation of anti-allergic activity of Piper longum . Indian Drugs 1984;21:377-83.
18. Atal & Ojha,Econ.Bot., 1965,19,157; Winton & Winton, IV, 336-37; atal et.al., Indian J.Chem., 1966,4,252; Indian J.Pharma 1966, 28.80.
19. Chakraborty A, Brantner AH. Study of alkaloids from Adhatoda vasica Nees. on their anti-inflammatory activity. Phytother Res2001;15:532-44.
20. Dhuley JN. Antitussive effect of Adhatoda vasica extract on mechanical or chemical stimulation-induced coughing in animals. J Ethnopharmacol 1999;67: 361-5.
21. Dorsch W. Stuppner H. Wagner H. Gropp M. Demoulin S. Ring J. Antiasthmatic Effects of Picrorhiza kurroa: Androsin Prevents Allergen- and PAF induced Bronchial Obstruction in Guinea Pigs. Int Arch Allergy Immunol. 1991;95 (2-3):128-133.
22. Cheng HY, Lin TC, Yu KH, Yang CM, Lin CC. Antioxidant and free radical scavenging activities of Terminalia chebula. Biol Pharm Bull. 2003;26(9):1331-5.
23. Shin TY, Jeong HG, kim DK, Kim SH, Lee JK, Chae BS, et al. et al. Inhibitory action of water soluble fraction of Terminalia chebula on systematic and local anaphylaxis. J Ethnopharmacol. 2001;74:133–140.
24. Wu CN. Safety and anti-inflammatory activity of curcumin: A component of turmeric (Curcuma longa). J Altern Complement Med2003;9:161-8.

25. Bharti AC, Donato N, Singh S, Aggarwal BB. Curcumin (diferuloylmethane) down-regulates the constitutive activation of nuclear factor- κ B and I κ B α kinase in human multiple myeloma cells, leading to suppression of proliferation and induction of apoptosis. *Blood* 2003;101:1053-62.
26. Nosál'ova G, Mokry J, Hassan KM. Antitussive activity of the fruit extract of *Emblica officinalis* Gaertn. (Euphorbiaceae). *Phytomed* 2003;10:583-9.
27. Bhattacharya A, Ghosal S, Bhattacharya SK. Antioxidant activity of tannoid principles of *Emblica officinalis* (amla) in chronic stress induced changes in rat brain. *Indian J Exp Biol* 2000;38:877-80.
28. Palit G, Singh SP, Singh N, Kohli RP, Bhargava KP. An experimental evaluation of anti-asthmatic plant drugs from ancient Ayurvedic medicine. *Aspects Allergy Immunol* 1983;16:36-41.
29. Godhwani S, Godhwani GL, Vyas DS. *Ocimum sanctum*: An experimental study evaluating its anti-inflammatory, analgesic and antipyretic activity in animals. *J Ethnopharmacol* 1987;21:152-63.
30. Kelm MA, Nair MG, Strasburg GM, Dewitt DL. Antioxidant and cyclooxygenase inhibitory phenolic compounds from *Ocimum sanctum* Linn. *Phytomed* 2000; 7:7-13.
31. Sabu MC, Kuttan R. Antidiabetic activity of medicinal plants and its relation ship with their antioxidant property. *J Ethnopharmacol* 2002;81:155-60.
32. Kiuchi F, Iwakami S, Shibuya M, Hanaoka F, Sankawa U. Inhibition of prostaglandin and leukotriene biosynthesis by gingerols and diarylheptanoids. *Chem Pharm Bull* 1992;40:387-91.