

ETHNOBOTANICAL STUDIES ON MEDICINAL PLANT : *ALLIUM CEPA* L. (ONION)

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In the present project, it is aimed to discuss the ethnomedicinal importance of *A. cepa* which is being used by rural people as tribal medicine. The bulbs of plant are used in the treatment of various disease and disorders. From chemistry point of view. The drug contains group of biologically active constituents known as Alkyl cysteine sulphoxides, quercetine and kaempferol.

Keywords : *Allium cepa*; Ethnobotany; Medicinal plant.

Introduction

Human culture have always been influenced by plants and their products. All indigenous remedies and medicines have their roots in one way or other in folk medicines and Ethnobotany. There exists a profound relationship between plant and humanity. The use of plants for curing various human ailment figured in ancient manuscripts such as tribal, the Rigvedas, Thalliad, the Odyssey and the History of Herodotus¹. *Allium cepa* L. belonging to family Liliaceae (Alliaceae) known as Palandu or Sukandka in Sanskrit, Onion in English, Pononi in Asami, Piau or Pyonj in Bengali, Piyaaj in Hindi, Dunguri in Gujrati, Vengavam in Tamil².

Botany - Onion is a biennial crop. Storing food in the bulb during the first season and flowering in the second season, when the day become long and warm enough. The root system of onion is shallow and fibrous. Each leaf consist of two main parts, a sheathing leaf base and a hollow, linear, cylindrical or flattened blade, both being separated by a short membranous ligule. The bulb consists of a short plate like stem on which by a number of concentric layers of fleshy leaf bases are attached. The outer leaf bases are thin, fibrous and dry, forming a protective covering or tunic around the leaner fleshy ones, which are laden with food. The innermost leaves also have thickened leaf bases but with aborted lamina^{1,3}.

Origin and Distribution - Onion originated in Central Asia, the onion was cultivated in India about 600 BC. It is now cultivated throughout the world. Although temperate in origin, it has been bred to adapt to tropic⁴.

Chemical constituents: 1.2% proteins, 11.6% carbohydrates, lesser than 1% fat, 0.18 Ca, 0.5% P, Fe, vitamins A,B and C, bulb have caffeic acid, ferulic acid, polyphenols, protocatechuic acid, kaempferol, quercetine

and its derivative, onion skin have kaempferol, dried skin have quercetine, sterol, cholesterol, -sitosterol, stigmasterol. Fresh herb on steam distillation yield an essential oil the "onion oil" Chief constituents of onion oil are various mono, di, tri and tetra sulphides thiols and thiophene derivatives and allyl disulphide².

Alkyl cysteine sulphoxides are characteristic components of the onion S. Propenyl derivatives are dominantly found in onion that is S-1-propenyl L-cysteine. Sulphoxide, l-toropenyl sulphenic acid, (Z) propanethial S-oxide⁵.

The majority of active constituents of onion are made up of two sets of compounds sulphur compounds and flavonoids⁶.

The sulphur compound 1 "Alkyl cysteine sulphoxide (ACSOS)" is the flavour precursor, which when cleared, by the enzyme allinase, generate the characteristic odour and taste of onion⁶. They form a strongly scented oil particularly the compound known as 'propane thial s-oxide' or 'lacrimatory factor'. It is responsible for the tearing in many person when the onion is cut⁷.

Two types of flavonoids are found in onion, the anthocyanins which impart red / purple colour to some varieties and flavanols such as 'quercetin' and its derivatives responsible for the yellow and brown skins of many other varieties⁶.

Material and Method

Survey was carried out during Sept. 04 to Jan 05 in order to collect ethnomedicinal data on this plant. Medicinal importance of the plant has been described after gathering information from local people, experienced old village folk and consulting literature. Plant collected during the survey has been deposited in the herbarium, Department of Botany, University of Rajasthan, Jaipur.

Traditional use - 'Bhoxa' (a tribe of Garhwal) use fresh onion paste on blister, boils and eye complain. Tribal people 'sagar' district (M.P.) use bulb as diuretic expectorant in rubifacient skin disease; as sedative, in insect bites and wounds Bulb juice is applied in bleeding from nose; ear complaints and on piles. Other rural folk of India use fresh onion in faintness convulsions and epileptic fits. It is applied on insect sting, with *Circulara topecia*. Seed paste (along with the root of *Punica granatum*, *Cajanas cajan*, *Piper rubrum* and honey) is given for abortion.

According to Upavarhana samhita the stem is delicious, energiser and stimulant. And according to Charaka Samhita and Sushruta Samhita onion is stimulant; helps in digestion but increases bile and phlegm.

The natives and traditional healers of chhattisharh use the Piyaz bulb juice in face care. According to them, regular external use of juice on face makes it fresh and free from pimples. It is also used to remove dark spots. The natives apply it in combination with multani mitti⁸.

Ayurveda - Ayurveda, a different school of medicine use onion for different purpose in different forms. Onion tuber is aphrodisiac pungent, taste improver as tonic, useful in biliousness, in bleeding piles, in body pain, tumors, vomiting. Seed fattening is useful in cavities of teeth and urinary discharge.

Unani - According to Unani school of medicine onion bulb is appetiser, pungent, stomachic, tonic, used in asthma, spleen disorders, vomiting, scabies, piles and light blindness.

Homeopathy - In homeopathy school of medicine onion is used for different ailments of eye, conjunctivitis and for relaxation of colic pain². Onion juice 1-2 drops in the ear twice, daily cures pus oozing of ear⁹. For abortion the vaginal region is fumigated with feces of wild pigeon and seeds of *A. cepa*¹⁰. The leaf juice is administered to treat jaundice¹¹. Hot water extract of fresh bulb is taken orally for diabetes¹².

Fresh juice of onion mixed with the juice of *Achyranthes bidentata* leaves is taken orally every two hours for cholera¹³. The dried seeds used as an abortifacient 3 parts of the seed of *A. cepa*, 3 parts of *punia granatum* root, 2 parts of *Cajanus cajan* and red oxide are taken with honey¹⁰. Hot water extract of the seed is taken orally as an emmenagogue¹⁴.

Other uses : The onion on consumption is effective in protection against cancer, coronary heart disease and diabetes. Which have been mainly attributed to organosulphur compounds, flavonoids, vitamins and minerals¹⁵⁻¹⁷.

The bulb is anthelmintic, anti-inflammatory anti spasmodic, carminative, diuretic, expectorant, febrifuge, hypoglycaemic, hypotensive, lithontripic, stomachic and tonic.¹⁸⁻²⁰ When used regularly in diet it offsets tendencies towards angina, arthriosclerosis and heart attack. It is also useful in preventing oral infection and tooth decay²¹.

The growing plant is said to repel insects and moth. A spray made by pouring enough boiling water to cover 1 kg of chopped unpeeled onions is said to increase the resistance of other plants to disease and parasites²².

The sulphur compound 'Allyl propyl disulphide' has been shown to block the breakdown of insulin by the liver and possibly to stimulate insulin production by the pancreas, thus increasing the amount of insulin and reducing sugar level in the blood²³. In a study onion consumption at a level of at least half an onion a day resulted in 50% decline in stomach cancer risk²⁴.

Higher onion intake was also associated with lower risk of breast cancer in a fresh epidemiological study²⁵. Onion contains ajoene that reduce the tendency of blood to clot and somewhat improves one's odds against arteriosclerosis and heart attack¹.

In Saudi Arabia hot water extract of fresh bulb is taken orally for diabetes, dropsy, colic, catarrh, chronic, bronchitis, Scurvey, body heat, epilepsy, hysterical fits, nosebleed, jaundice, unclear vision spleen enlargement, rahumatic pain and strangury²⁶.

In Mexico decoction of the dried leaf together with *Pimpinella amisum* and *Allium sativum* is given orally to new born infants²⁷. The root is taken orally to facilitate expulsion of the placenta²⁸. In Nepal the fresh bulb is taken orally for tuber culosis. Five hundred gms of the leaf of *Adatoda vasica* is decocted in 5 litres of water untill a dark brown mass remains. Half a teaspoonful of this drug is taken with honey and 10 gms *A. cepa* twice daily for 6 months²⁹.

Result and Discussion

The survey provides an evidence that the tribal people use this plant in various ailments. The tribal people of different region of the India use *A. cepa* since its great medicinal value for earlier times. The great medicinal value of the plant show the importance of this medicinal plant *A. cepa* in the field of research for curing various ailments in future world.

The genus *Allium* is least exploited as far as the modern medicines and present research is concerned and this can be easily concluded that there is an immense need and large scope of work with this genus.

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