

"INVESTIGATIONS ON Medicinal plant *Capparis zeylanica* L RESOURCES EFFECTIVE AGAINST RESPIRATORY DISORDERS"¹ Dr. Sanjeev Samrat Ingle, ² Dr. Kiran Abasaheb More

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**Abstract**

Plant *Capparis zeylanica* L Commonly called as waghata is traditionally used as wild vegetable plant, Fruit of the plant is commonly used as a vegetable as a source of valuable medicine. The plant is used in diseases Vataja Shotha – Vyaaghranakhi (Ahimsra) and Raasna externally applied (VM).In dysentery, juice of Vyaaghranakhi leaves with black pepper powder is consumed.In cough and cold, the juice of the leaves is consumed along with a cup of fresh gout milk.In diabetes, the ripe fruits are consumed twice for 2 weeks and during ingestion, the stem bark extract is administered three times a day.It is used as an appetizer, prepared by dipping the paste of the plant with pepper, tamarind and garlic.In colic, the paste prepared from the stem bark, 10 black pepper seeds and 2 garlic bulbs is mixed with 500 ml of water and consumed twice a day for two days.In convulsive convulsions, a handful of fresh roots of Vyaghranakhi, 50 grams of onions, 50 grams of mushrooms are all ground together to make a bolus and given twice a day for 3 days. Due to valuable medicinal uses plant *Capparis zeylanica* is need to be ethnomedicinal investigation.

Keywords - *Capparis zeylanica*, valuable medicine, ethnomedicinal investigation.

Introduction

The tribal's have developed their own traditional knowledge related to plant medicine, which becomes treasure trove and cultural heritage of our nation. Herbs have provided us some of very important life saving drugs used in the armamentarium of modern medicine. As the global use of herbal medicinal products continues to grow and many more new products are introduced into the market, public health issues and concerns surrounding their safety are also increasingly recognized. Although some herbal medicines have promising potential and are widely used, many of their pharmacological properties remain unverified Raynol et.al (2011). It is therefore very important to preserve and protect the traditional knowledge and also to establish a data base of traditional medicine.

The use of plants, preparation and administration of drugs varies from area to area. Although the knowledge of herbal medicine is gradually vanishing some of the traditional healers and aged tribal healers are still practicing plants as herbal medicine.

Exchange of gases in higher organisms is called respiration. The gas exchange involves taking oxygen into the body and expelling carbon dioxide. Respiratory disorder, or respiratory disease, is a term that includes a variety of pathogenic conditions that affect respiration in living organisms. Respiratory disorder, or respiratory disease, is a condition that affects people of all ages in every corner of the world. Respiratory disease occurs in the respiratory tract, which includes the alveoli, bronchi, bronchioles, pleura, pleural cavity, trachea and the nerves and muscles of breathing. The respiratory disorder causes an immense health burden.

There are three main types of respiratory disease: airway diseases, lung tissue diseases and lung circulation diseases. Airway diseases affect the tubes that carry oxygen and other gases into and out of the lungs. Airway diseases usually result in narrowing or blocking of the passageways. Lung tissue diseases affect the structure of lung tissue and result in scarring or inflammation of the lung tissue. This, in turn, makes breathing difficult. Lung circulation diseases occur when the blood vessels in the lungs become clotted, inflamed or scarred. These diseases affect the ability of the lungs to receive oxygen and produce carbon dioxide, and they may affect the functioning of the heart.

Material and methods

Morphological characteristics of each plant taxon was done and identified with the consultation of different floras. The unidentified specimens were shown to renowned taxonomist personally in order to confirm the botanical identity of the plant. The voucher specimens are deposited in the Department of Botany, Bharatiya Mahavidyala, Amaravati. The subsequent visits were planned to photograph the

plants in proper blooming period and also to tally the folk medicinal uses. These visits were done after confirmation and noting of ethnomedicinal information about the plant species. The help and co-operation of local tribal guides and vaidu's collection and photography was done in each visit. The tribal guides and other tribals are familiar with the conditions in these remote areas. The natures of the tribals were observed to be simple, innocent and they offer their full help and co-operation once they convinced. The research student experienced simple, co-operative nature of tribals as in many occasions they offered food and shelter to him. Because of their poverty by giving some gift it made possible to find out the exact location of plant species.

After collection, the completion of description, identification and noting on Ethno-medicinal significance, the samples were brought to laboratory at Bharatiya Mahavidyalaya Amravati for phytochemical investigation. Each sample was analyzed for phytochemical constituents through literature and it was incorporated in the text along with their references. The important plant species were screened for phytochemical investigation qualitatively by Soxhlet's extraction method and quantitatively by GC-MS.

In present research work seven such plants were selected which are medicinally significant and most of the folk practitioners used them. Their parts like roots, tubers, corms, stem bark, leaves, flowers, fruits, seeds etc. are used as crude mono as well as polyherbal drugs by herbal healer to cure respiratory disorders. The preliminary phytochemical screening and spectroscopic analysis of the following seven plants were undertaken in present work.

Result and discussion

Capparis zeylanica L., Sp. Pl. ed. 2:720. 1762: Cooke, Fl. Pres. Bombay 1: 42. 1958 (Repr.); Raghavan in Sharma *et al.* Fl.India 2: 298. 1993; Londhe in Singh *et al.* Fl. Maharashtra St. Dicot. 1: 215. 2000. C. borrida L.f. Suppl. 264. 1781; Hook. f. & Thoms. In Hook. f. Fl. Brit. India 1:178. 1872; Cooke op.cit. 51.

Plate No. 5**Vernacular name****Habitat****Flowers****Fruits****Description**

Compacting shrub, branches with hooked spines, reddish-brown tomentum in younger parts. Leaves are acute with twisted callous tip. Flowers are extensively colorful, 3-5 cm across in supra-axillary rows of 2-6 flowers, developing before leaves. Petals white with white spot. Stamens 30-50, creamy white, turning to pink. Fruit globular, woody. Seeds are many.

Voucher Specimen No.**Fig. No. 4**

- Waghata (M)

- Along the bank of the rivers

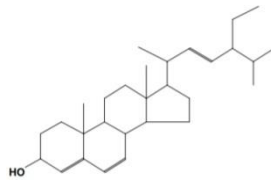
- March end to April

- June- July

- 510 /BMV/373

Plant parts used - Leaves Mode of administration 1-2 gms leaves powder or decoction with a black salt is given thrice a day in the treatment of breathing problems. Leaves juice of <i>Capparis zeylanica</i> L. taken orally with cup of fresh gout milk for curing cough and cold (Shivanna and Rajkumar, 2010). Shivanna, M.B. and Rajkumar, N. (2010). Ethano-medico-botanical knowledge of rural folk in Bhadravathi taluk of Shimoga district Karnataka, <i>Indian Journal of Traditional Knowledge</i> , 9(1): 158- 162.					Chemical Constituents Whole plant showed the presence of saponin, p-hydroxybenzoic, syringic, vanillic, ferulic and p-coumanic acid. Leaves & seeds showed presence of β-carotene, thioglycoside, glycocapparin, n-tricortane, α-amyrin &fixed oil where as root bark showed presence of an alkaloid, a phytosterol, a water-soluble acid and a mucilaginous substance. ¹ Plant Contained alkaloids, tannins, Flavonoids, fatty acids, E-octadec-7-en-5 ynoic acids, saponins glycosides, terpenoids, saponins, P-hydroxybenzoic, syringic, vanillic, ferulic and p-coumanic acids. ²		
Table 4.2.2.A2.a.: GC-MS Analysis of <i>Capparis zeylanica</i> L W.& A. (B1) -(20ES-0497).							
Sr.No	Retention Time	Peak area (%)	Compound Analyzed	Molecular formula	Molecular weight	Probable structural Formula	Activity reported
1	16.859	1.425	Octan-2-one, 3,6-dimethyl	C10H20O	156		Activity not reported
2	18.960	2.580	1-(7-Hydroxy-1,6,6-trimethyl-10-oxatricyclo[5.2.1.0(2,4)]dec-9-yl)ethanone	C14H22O3	238		Activity not reported
3	20.931	16.194	1-(7-Hydroxy-1,6,6-trimethyl-10-oxatricyclo[5.2.1.0(2,4)]dec-9-yl)ethanone	C14H22O3	238		Activity not reported
4	22.346	13.148	2-Acetoxy-1,1,10-trimethyl-6,9-epidioxydecalin	C15H24O4	268		Antispasmodic, COX-2inhibitor, Antiacid, Respirostimulant
5	23.252	8.486	2-Dodecen-1-yl(-)succinic anhydride	C16H26O3	266		Activity not reported
6	24.507	3.850	2-Hexanone, 6-bromo	C6H11OBr	178		Activity not reported
7	24.642	4.044	2-Isopropyl-5-methylcyclohexyl 3-(1-(4-chlorophenyl)-3-oxobutyl)-coumarin-4-yl carbonate	C30H33O6Cl	524		Activity not reported

8	25.092	3.29 7	9,19-Cyclolanostan-3-ol, acetate, (3.beta.)-	C32H54O 2	470		Oligosaccharide provider
9	25.513	7.12 8	Heptacosane	C27H56	380		Antibacterial
10	26.058	3.86 2	Docosane, 1,22-dibromo	C22H44Br 2	466		Antibacterial activity
11	26.508	17.5 34	Tetratetracontane	C44H90	618		Promoted an effective action in bacterial reduction with the application of laser energy
12	27.754	2.41 1	2-Isopropyl-5-methylcyclohexyl 3-(1-(4-chlorophenyl)-3-oxobutyl)-coumarin-4-yl carbonate	C30H33O 6Cl	524		Activity not reported
13	28.014	3.27 1	.Beta.,.beta.-carotene, 5,6-dihydro-5,6-dihydroxy	C40H58O 2	570		Beta blocker
14	28.344	2.04 9	9,19-Cyclolanostan-3-ol, acetate, (3.beta.)-	C32H54O 2	470		
15	28.589	2.87 7	Urs-12-ene-1,2,11-triol, 3-(acetyloxy)- (1.beta.,2.alpha.,3.beta.,11.alpha.)-	C32H52O 5	516		Energyzer
16	28.974	3.54 7	2-[4-Methyl-6-(2,6,6-trimethylcyclohex-1-enyl)hexa-1,3,5-trienyl]cyclohex-1-en-1-carboxaldehyde	C23H32O	324		Activity not reported

17	29.524	4.29 8	Stigmasta-4,6,22-trien-3.alpha.-ol	C29H46O	410		Activity not reported
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Conclusion

Plant contain 2-Acetoxy-1,1,10-trimethyl-6,9-epidioxydecalin is effective as Antispasmodic, COX-2inhibitor, Antiacid, Respirostimulant. ∴ GC-MS Analysis of *Capparis zeylanica* find 9,19-Cyclolanostan-3-ol, acetate, (3.beta.)-is Oligosaccharide provider, Tetratetracontane shows effect as Promoted an effective action in bacterial reduction with the application of laser energy, Urs-12-ene-1,2,11-triol, 3-(acetyloxy)-(1.beta.,2.alpha.,3.beta.,11.alpha.) shows Energyzer,

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