

Usage of Plants and their use in various Ailments in Shivamogga District of Karnataka : A Review

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ABSTRACT

The present review study deals with the documentation of plant resources for various ailments as reported by various researchers in Shivamogga district of Karnataka. The peoples of this area have a very good knowledge about the usage of these plants. Elder peoples of this area have common knowledge and easy cure for many common diseases and prepare different types of medicines from different plant parts. India is rich in therapeutic and aromatic plants and play an important role in the country's agricultural sector due to quantitative and qualitative advantages. These plants can help small-scale farmers to strengthen their livelihoods and capacity to build successful and sustainable activities.

Key words : Plant resources, Medicinal value, Shivamogga, Traditional knowledge

Introduction

The information of therapeutic flora has been accumulated in the path of several centuries based on Ayurveda, Unani and Siddha. In About 2500 plants are used by traditional healers and 100 species of vegetation serve up as usual source of drug in India (Pei, 2001). In recent years there has been a amazing range of attention in the therapeutic plants especially those used in conventional systems of medicine. Drugs obtained from plant are believed to be much safer and exhibit a remarkable efficacy in the treatment of various diseases (Siddiqui *et al.*, 1995). It is estimated that 70-80% of the populace worldwide rely chiefly on conventional health care system and largely on herbal medicines (Farnsworth *et al.*, 1985, 1991, Shengii 2002; Shanley *et al.*, 2003;

Hiremath *et al.*, 2010).

The extract of the plants are used as therapeutic agent and medicines are prescribed by physicians either isolated from plants or modified versions of natural products (Wang *et al.*, 2007). These medicines are safe and environment friendly. As per the WHO about 80% of the world's population relies on traditional medicine for their primary health concern (Behera, 2006). Medical research has confirmed in numerous plants for the treatment of gastro intestinal problems and their healing effects (Kanner and Lapidot, 2001; Gurbuz *et al.*, 2000; Devi Prasad *et al.*, 2013).

Study Area

Shivamogga district lies in the Western part of the Karnataka between 13° 27' to 14° 14'39" North lati-

tude and 74°38' to 75° 45' East longitude. The area enjoys tropical climate throughout the year. The main crops grown in this area are Paddy, Ragi, Jowar, Maize, Cotton, Groundnut, Pulses, Sugarcane, Coconut and Areca nut. The soils that occur in the study area are reddish to brownish clayey loam to lateritic. Soil is acidic in nature (Central ground water Board, 2012).

Results and Discussion

Treatment of Piles

Nafeesa Begum and Kiran (2018) reported overall of 56 plant species belonging to 54 genera comprising of 36 families used especially for the treatment of Piles by the community of Shivamogga area. Methods of medical treatment used by knowledgeable elder people and local herbal healers in Shivamogga taluk were traditional, very effective and acquired through their ancestors orally. These traditional herbal formulations need further pharmacological investigations to develop new medicines for the effective treatment of chronic diseases (Shivanna and Rajakumar, 2010).

Antidiabetic plants

Diabetes is due to insulin deficiency. It is estimated that 1 in 5 may be diabetic by the year 2025. The most active plants are *Allium sativum*, *Azadirachtha indica*, *Momordica charantia* and *Ficus bengalensis*. The antidiabetic plants showing antidiabetic activity. The compounds are inorganic ions, coumarins, lipids, flavonoids, steroids, peptides, amines, terpenoides, glycopeptides, alkaloids, complex carbohydrates which decreases glucose level in blood.

Nafeesa Begum and Kiran (2018) have reviewed the chemical constituents of few antidiabetic plants. Insulin is a small peptide (protein) consisting of 51 amino acids synthesized and stored within the pancreas, an organ situated behind the stomach.

Forage yielding plants

Nafeesa Begum and Kiran (2018) documented the forage plants in and around Shivamogga taluk, Karnataka. A total of 38 plants belonging to 17 families were reported which are used as fodder to the livestock. Among 17 families Fabaceae is dominant with 11 species followed by Poaceae (05 species), Moraceae and Combretaceae with 04 species each, Euphorbiaceae with 2 species. Their findings suggest a high scope of the utilization of these natural and cultivated/uncultivated plants for supporting livestock-based livelihood.

Harish Kumar and Kiran (2015) recorded a total of 47 plant species belonging to 27 families from the Bhadravathi area which are sources of fodder to the livestock. They reported that among families Fabaceae is dominant with 8 species. Dry paddy straw is stored and used as fodder during summer season.

Plants used for Oral ulcers/ Sore mouth

The plants like *Areca catechu*, *Cassia fistula*, *Tamarindus indica* and *Vitex negundo* are used in oral ulcers. The leaf of *Cassia fistula* and *Vitex negundo* are grind to a fine paste and apply over the ulcerated area. While, the root of *Areca catechu* and fruit of *Tamarindus indica* grind to a fine paste and apply on ulcerated area. *Zizyphus Jujuba* leaf decoction is used for a week to cure mouth ulcers.

Table 1. One way ANOVA data for various ailments

Treatment	Forage yielding, Piles, Aromatic plants (A)	Gastro intestinal, Human ailment, Infectious & Non infectious plants (B)	Various ailment-II, III, Dye yielding & veterinary plants (C)	Ailment-IV, Non edible and edible oil plants (D)	Pooled Total
N	9	9	9	9	36
Sum	328.0000	338.0000	341.0000	180.0000	1,187.0000
Mean	36.4444	37.5556	37.8889	20.0000	32.9722
Sum of squares	13,278.0000	13,320.0000	19,205.0000	3,730.0000	49,533.0000
Sample variance	165.5278	78.2778	785.6111	16.2500	296.9992
Sample std. dev.	12.8658	8.8475	28.0288	4.0311	17.2337
Std. dev. of mean	4.2886	2.9492	9.3429	1.3437	2.8723

Antithyroid activity of Herbal plants

Genistein and daidzein from *Glycine max* inhibit thyroperoxidase that catalyses iodination and thyroid hormone biosynthesis. Rutabaga and turnips contain a thiourea like product (progoitrin), a precursor of goitrin that also interferes with thyroperoxidase (Delange *et al.*, 1989). And also hypothyroid effects include *Pennisetum glaucum* and *Digitaria exilis*; thiocyanate is found in Brassicaceae plants (Gustavo and Román, 2007). The most useful herbal flora under and overactive thyroid are sea plants. Bladder wrack, a form of kelp, is used in both western and Chinese herbal medicine (Mary Shomon, 2012).

Gastro intestinal disorders

Abutilon indicum leaf juice is used to cure stomach ache. *Achyranthes aspera* leaf fluid along with butter milk to control dysentery. *Aegle marmelos* fruit pulp mixed with pepper powder is given for indigestion. Fresh buds of *Calotropis procera* ground with salt and pepper are given to cure stomach pain.

Cynodon dactylon root powder with little sugar and cardamom to control dysentery. *Cyperus rotundus* rhizome powder with butter milk taken for 2-3 days to cure dysentery. *Ficus religiosa* leaf grind with jaggery to control stomach ache. Leaf decoction of *Leucas aspera* mixed with rock salt to cure stomach pain.

Moringa oleifera leaf mixed with honey and coconut water to control dysentery. Root paste of *Nerium indicum* is applied to piles. Young shoots of *Punica granatum* with little salt to cure stomach pain. *Psidium guajava* leaf with butter milk and taken to cure piles.

Holarrhena antidysenterica stem and bark powder used to cure abdomen problems. *Oxalis corniculata* leaf decoction is to control dysentery. Seed of *Pongamia pinnata* is used to kill pinworm. *Zingiber officinale* rhizome is taken with hot water for indigestion.

Kavitha *et al.*, (2004) isolated alkaloids from *Holarrhena antidysenterica* seeds and it is effective against *E. coli* bacteria. Mamtha *et al.* (2004) was ob-

served broad spectrum activity of *Centella asiatica* against a wide range of enteric pathogens. In indigenious system Dandamudi *et al.*, (2010) revealed the antioxidant activity and total phenol content in *Pongamia pinnata* flowers. Devi Prasad *et al.* (2013) reported a total of 32 plant species which are used for the problems of digestive disorders by the tribes of Wayanad district, Kerala

Aromatic plants

Nafeesa Begum and Kiran (2018) have recorded 40 aromatic plant species belonging to 33 genera comprising of 22 families in Shivamogga district. Green plants have many biochemical products, Many floras are used as feed stocks or as raw material for various scientific investigation. Plant secondary metabolites have pharmaceutical compounds (Ashish Kumar and Jnanesha, 2016).

Non-edible oil yielding plants

Harish Kumar and Kiran (2016) documented non-edible oil yielding plants in and around Bhadravathi taluk of Shivamogga district. A total of 27 Non-edible oil seed bearing plants with 23 genera and 17 families were reported by them. *Pongamia* seed oil is used for lighting in the temple, houses and used as bio-fuel for vehicles. Neem oil is used in soap factories, pharmaceuticals and boot polishing. Sandal wood oil is used in soap industry. *Ricinus communis* oil is an motor lubricant and has used in internal combustion of engines (<https://en.wikipedia.org>).

Edible and Dye yielding plants

Nagaraj Parisara and Kiran (2016) carried out documentary survey of edible oil yielding plants in and around Bhadra Project area of Shivamogga district, Karnataka. They documented a total of 22 edible oil bearing plants belong to 22 genera and 15 families. Ground nut oil give a pleasant taste for human utilization and used for food preparation. *Zea mays* is a main source of starch. Maize powder is used for cooking. *Punica granatum* are used in cooking, baking, meal garnishes, juice blends, smoothies, and alcoholic beverages, such as cocktails and wine.

Table 2. One-way ANOVA for independent treatments

Source	Sum of squares	Degrees of freedom	Mean square MS	F statistic	p-value
Treatment	2,029.6389	3	676.5463	2.5880	0.0701
Error	8,365.3333	32	261.4167		
Total	10,394.9722	35			

Nagaraj Parisara and Kiran (2016) documented dye yielding plant resources of Bhadravathi taluk, Karnataka. Their study reported 29 dye yielding plants belong to 26 genera and 19 families, along with their habit and parts used. They opined that Fabaceae is dominant family with 5 species.

Various ailments

In villages of Thirthahalli taluk of Shivamogga district, Prabhu Niranjana *et al* (2017) work revealed a sum of 21 Genera of medicinal plants including 15 Families and few medicinal plants which were not mentioned in Ayurveda and they considered them as extra pharmacological drugs and 4 such plants were endemic to the study area like *Flueggea leucopyrus*, *Persea macrantha*, *Actinodaphne wightiana* and *Sauropus androgynus* as Western Ghats is known for its rich in bio-diversity.

Parinitha Mahishi *et al* (2005) carried out extensive surveys in Shimoga for the purpose of documenting plants used by the local communities. The information recorded was further ascertained or cross-checked by consulting the beneficiaries, villagers and other medicine men. The conservation status of each medicinal plant species collected was assessed using IUCN Red list (Nayar and Sastri, 1990; Gowda *et al.*, 1997; Ravikumar and Ved, 2000).

Rajkumar and Shivanna (2009) research aimed to document the role of traditional herbal drugs in the

treatment of human and veterinary ailments by communities residing in the Eastern part of Shimoga district, Karnataka.

Shivanna and Rajkumar (2011) documented ethno-medico-botanical knowledge in Hosanagara taluk in Shimoga district of Karnataka, India by means of a questionnaire. They recorded total of 86 plant species belonged to 44 families for treating 47 human and 16 veterinary ailments were analyzed by informant consensus factor use value and fidelity level.

In Western Ghats of Shivamogga, Savinaya *et al* (2016) recorded 51 plant species of therapeutic plants belongs to 50 genera and all were used by local conventional healers for curing diverse types of human ailments.

Anil Kumar and Shivaraju (2016) reported a systematic survey on traditional knowledge, medicinal application, taxonomy and vulnerability of important plant species in Western Ghats of Shimoga region. They identified more than 301 plant species belonging to 106 families and reported for their medicinal applications during their study. Among them, about 86 plant species were reported as diverse endemic species belonging to 44 families in the Western Ghats of Shimoga region. Among the 86 endemic plant species, about 28 species which have unique features for multipurpose application and diversity in nature were reported as under the vul-

Table 3. Use of plants as reported by various researchers of Shivamogga district

	Forage yielding	Piles	Aromatic	Gastro-intestinal	Human ailment -I	Infectious & Non infectious	Various ailment-II	Dye yielding plants
Total Species	38	56	40	36	48	47	20	29
Families	17	36	22	25	31	28	15	19
Genera	32	54	33	33	44	46	20	26
References	Nafeesa Begum & Kiran, 2018	Nafeesa Begum & Kiran, 2018	Nafeesa Begum & Kiran, 2018	Nafeesa Begum & Kiran, 2018	Rajkumar & Shivanna, 2010	Parinitha Mahishi <i>et al.</i> , 2005	Prabhu Niranjana <i>et al.</i> , 2017	Nagaraj Parisara & Kiran, 2016
	Human ailment -III	Human & veterinary ailment	Traditional medicine	Therapeutic value	Human ailment-IV	Non edible oil plants	Edible oil plants	
Total Species	85	86	51	301	21	27	22	
Families	41	44	-	106	15	17	15	
Genera	-	-	50	-	18	23	22	
References	Rajkumar & Shivanna, 2009	Shivanna & Rajkumar, 2011	Savinaya <i>et al.</i> , 2016	Anil Kumar & Shivaraju, 2016	Poornima <i>et al.</i> , 2012	Harish Kumar & Kiran, 2016	Nagaraj Parisara & Kiran, 2016	

nerable condition.

Poornima *et al* (2012) studied the therapeutic plants used by plant healers in Narasipura and Manchale villages of Sagara Taluk, Shimoga. They recorded a total of 21 plants. The information about local name, plant parts used, type of formulation and disorders for which they were used are documented by them. The p-value corresponding to the F-statistic of one-way ANOVA is higher than 0.05, suggesting that the treatments are not significantly different for that level of significance.

Conclusion

Higher fiber foods like fruits, vegetables, grains and pulses regular usage prevents unnecessary fluctuations in blood sugar, as it has a low glycemic index. Pulses like soybeans are useful to diabetes, as they help the cell to accept insulin more easily. This leads to quicker blood sugar control (Rizwana Mubeen *et al.*, 2005). The ethno-medicinal knowledge about plants is vital in primary healthcare system. These plants are to be scientifically evaluated and conserved for well being of mankind. These herbal formulations need further pharmacological investigations to prove their efficacy and for their use as effective drugs in treatment of many human diseases.

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