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TRADITIONAL USES OF WILD CURRY [*Murraya koenigii* L.] GROWING IN NATURAL FORESTS OF UTTARA KANNADA

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Abstract

The present study was carried out to document traditional knowledge on wild curry leaves plant in natural forests of Uttar Kannada districtduring 2021-2022. Atotal of 60 respondents from three different altitudinal zones which come under Agro-climatic zone 8 and 9. The results indicated wild curry is widely used by locals for various purpose like medicinal, culinary, insect repellent and few cases of other uses were also documented. Among the altitudinal zones, 16 different types of medicinal uses were observed of which highest uses are from zone-C (11) followed by zone-B (6) and zone-A (2). Among medicinal uses, the leaves are widely used for hair care followed by diabetes. The leaves of wild curry are using in culinary purpose for preparation of various food items like curry, chutney, sambar, tempering and for preparation of non-veg items. Leaves are the only plant parts used for culinary purpose. The plant is also used as an insect repellent to repel insects especially mosquitoes using fumigation method and their usage is more prevalent in all the zones. Leaves are used in the preparation of shampoo, as a fertilizer and seed as poison. There are no religious uses of the plant. People are generally involved in collection and marketing of herbage from natural forests. Commercially wild curry plant is using withought any value addition.

Keywords: Wild curry, traditional knowledge, questionnaire survey, medicinal, culinary, mosquito repellent, marketing.

Introduction

India, which is aptly referred to as the botanical garden of the globe and it is the world's largest producer of medicinal plants. Many Communities are still kept up as excellent repositories of traditional knowledge. There is no written record of this knowledge's oral transmission from generation to generation, yet it has historically been preserved by many indigenous communities around the world. (Vinodh *et al*., 2013).

From the dawn of creation, humans have employed plants to relieve the pain and illnesses. When hurt in combat or after a fall or cut, primitive humans instantly turned to things around for alleviating pain and reducing the flow of blood. People learned through trial and error that some plants were more potent than others. Man has also acquired such expertise from his observation of birds and other creatures that utilize plants for food and healing their illnesses. Even now, we observe that household cats and dogs exhibit symptoms of run to the field, eat some grasses or herbs and then throw up in order to recover from indigestion or other ailments (Ajay *et al*., 2011).

*Murraya koenigii*is a tropical and sub-tropical shrub in the family Rutaceae. The plant is sometimes called as ‘Sweet neem’. It is a valuable leafy vegetable with several applications. In Kannada, it is known as 'Karibevu.' The plant is native to the Indian sub-continent. Only two *Murraya* species, *M. koenigii* (Spreng) and *M. paniculate* (orange jasmine), are

known to exist in India among the 14 worldwide species (Verma, 2018).*M. koenigii* has been used for centuries in Indian cooking and has a wide and varied role in traditional medicine (Jain *et al*., 2012).

About 80% of the population in poor nations is thought to rely mostly on traditional system of medicine for their healthcare. To provide a foundation for additional pharmacological studies, it becomes necessary to screen medicinal herbs for bioactive chemicals (Hasan *et al*., 2007).

Materials and Methods

The present study was carried out in Uttar Kannada district, Karnataka which is located at14°79ˈ37ˈˈ N latitude and 74°68ˈ69ˈˈE longitude during 2021-22.The district comes under the Agro-climatic zone-8 and 9 of Karnataka. Totally three altitudinal zones were selected to collect the information *i.e.,* zone-A (634-645m**)**, zone-B (577-585m) and zone-C (509-520m).

Survey was carried out by using semi-structured open questionnaire, in the randomly selected villages within the selected zones. Information pertaining to medicinal, culinary, religious and other uses of wild curry plant were investigated. The target group of this study were elders and traditional health care practitioners. In order to avoid over-lapping of the data, only one person each home was interviewed (60 respondents- 20 from each zone). The plant samples were collected from natural forest to avoid confusions about the species from the respondents. Information about uses in various fields, time of harvesting, value addition, storage and marketing channel were collected.

The data gathered in the course of the interview were subjected to a simple descriptive analysis to determine the percentage of the data from the respondents of different zones.

Results and discussion

Totally sixteen medicinal values were recorded from three different altitudinal zones.Among the altitudinal zones, zone-C people have more knowledge about medicinal usage of wild curry leaves, followed by zone-B with and lowest was in zone-A.Leaves are the mainly used part from the *Murraya koenigii* plant(100%). Whole plant is also used in all the altitudinal zones (30% in zone-A, 25% in zone-B and 40% zone-C). Seeds are used in both zone-A and zone-B with 15 and 25 per cent respectively. Bark is used in zone-B with 10 per cent and root in zone-C with 5 per cent (Table 3).

Gahlawat *et al*.(2014) corroborated the study by reported that the leaves are the highly used plant parts and leaves were followed by whole plant, seeds and other remaining parts. 100 per cent results can be seen in leaves usage in all the three altitudinal zones. 25- 40 per cent peoples are using whole bark for their uses. Goyal *et al.* (2020) supported the results, where whole plant and its parts are useful in various field. Even Singh *et al*. (2020) suggested that whole plant is useful in medicinal field.

Murraya koenigii leaf juice along with coconut oil used for hair growth, thick hair, to avoid hair fall and to avoid premature hair greying (Table 1). People from all the three zones are using the leaves for hair care (Fig. 1). According to Mankar *et al*. (2021), this property is due to high concentration of amino acids, which help to build hair fibre. They prepared hair oil formulations using curry leaves with different formulations for hair health. Similar work was done by Purwal *et al*. (2008). They prepared hair oil formulation by using *Murraya koenigii.* They observed increase in follicular size and an extension of the anagen phase in *M. koenigii* concentrated formulation.

In this study, it could able to plot out the glucose level balancing property of curry leaves. Majority of the people using curry plant for diabetes, next to hair care (Table 1 and Fig. 1). These results are in line with the reported results of Amin *et al*. (2013), administration of curry leaves, greatly reduced the blood sugar level compare to standard drug metformin. They concluded that which may be brought on by the antioxidant's polyphenols and carbazole alkaloids. Goyal *et al.* (2020) also given similar report on curry leaves, that curry leaves have ability to maintain blood sugar level.

The present study indicated *Murraya koenigii* usage for body weight reduction or to control bad lipid (Table 1). People from zone-C has knowledge about antilipidemic activity curry

leaves (Fig. 1). Similar use of *M. koenigii* was reported by Rahul *et al*.(2010). They reported that curry leaves greatly decreased the body weight gain, triglyceride (TG) and plasma total cholesterol (TC). They concluded that, Mahanimbine is the constituent which is responsible for antilipidemic activity of *M. koenigii*. Some people using for cardiovascular health due to its antilipidemic activity.

In this study, *Murraya koenigii* is using for eye health (Table 1). Among the zones, zone-B and zone-C people are using it for eye health (Fig. 1). The presence of proteins, minerals and β-carotene lead to the usage of curry leaves for eye health as told by Sonia *et al*. (2020) and Gahlawat *et al*.(2014). Even *M. koenigii* has antifungal and anti-microbial activity, leaves are crushed and placed on wounds immediately after the cut and even for some skin problems (Table 1). People from zone-A and zone-C are using it as anti-microbial agent (Fig. 1). This property was supported by Nithya *et al*.(2020).According to their study, the herbal leaf extract made from cow ark has a high potential for antibiofilm, antibacterial and antioxidant activity and may be utilised to treat a variety of ailments.

Both roots and leaves are using to treat piles. Leaf juice was consumed during menstrual time to balance the blood flow due to the presence of good iron content in it. Many people are using it as memory enhancer and ulcer controller (Table 1).Wild curry leaves are mainly used in Indian cookeries from several generations. It almost took its part in all variety of Indian traditional food on daily basis. It's used to prepare seasoned sambar powder, curry blend, chutney, pickle, vada, and fried items (Table 1).

The present study revealed the 100 per cent culinary use of leaves from *Murraya koenigii* plant (Table 2). The wider usage of *M. koenigii* may be due nutritional benefits. This gets support from the work of Shanthala and Prakash (2005) study investigates the feasibility of adding dehydrated (*M. koengii*) curry leaf powder (CLP) both at levels of 5 and 10% to common recipes. They concluded that *M. koenigii* leaves has protein (12.5%), fat (5.4%), insoluble fibre (55.6%), soluble fibre (4.4%), total ash (9.7%), iron (12.0 mg/100 g), calcium (2.04%) and phosphorus (373 mg/100 g). Hence the plant is widely consumed by locals.

Commercially raw leaves were directly selling in vegetable markets. Seasoned sambar powder, curry powder, curry leaves chutney powder, curry leaves fish masala etc., were selling with different brand names (Table 1).
Mosquito repellent usage also recorded in all the zones. Traditionally *Murraya koenigii* leaves were used to repel the insects. Jamil *et al*. (2016) reported 100% repellence. In the present study research 100% peoples are using fumigation methods with leaves. Namrata *et al*. (1997) also used fumigation method but in lab setting to repel the insects.

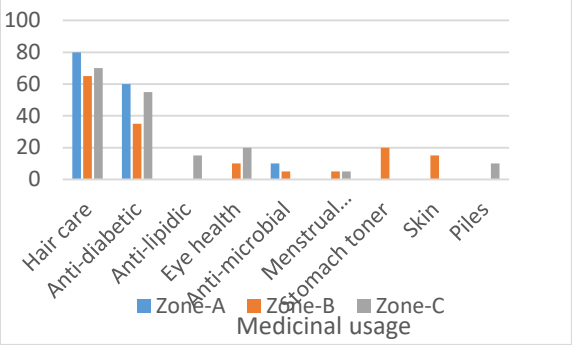

Fig. 1. Medicinal usage of *Murraya koenigii*

Majority of the people are using curry leaves for culinary purpose followed by medicinal purpose, traditional and commercial purpose. It's a daily ingredient in food and "Magical Plant of Indian Spice," as told by Nishan and Subramanian (2015).

Conclusion

Survey revealed that people are using wild curry leaves for various health issues. Knowledge of medical use was highest in zone-C (58%). Leaf is more used plant part. It is used primarily of hair care and for diabetic purpose. Leaves are used in culinary for preparation of mainly curries and chutney, tempering it is also used for fish curries, non-vegetarian masala, pickle and sambar. Leaves are also used as mosquito repellent, poison and as fertilizer. There is no report of religious use. The leaves are collected and marketed without doing any value addition by few. There is no commercial scale collection, processing and marketing of wild curry in the study area.

Table 1. Traditional knowledge of *Murraya koenigii*

Sl. no.	Zone-A		Zone-B		Zone-C	
	Part	**Purpose**	**Part**	**Purpose**	**Part**	**Purpose**
Medicinal						
1	Leaves	Hair greying	Leaves	Gastric	Leaves	Hair fall
2		Diabetic		Indigestion		Thick hair
3				Menstrual problems		Reduce bad lipid
4				Skin burns		Piles
5				Stomach tonic		Diabetes
6			Leaves and barks	Antimicrobial		Healthy heart
7						Eye health
8						Menstrual problems
9						Memory enhancer
10						Ulcer problems
11					Root	Piles
Culinary						
12	Leaves	Curries and Chutney	Leaves	Sambar powder	Leaves	Tempering
13		Sambar		Dry chutney powder		Fish curries
14		Tempering		Pickle		Non veg masala
Commercial						
15	Leaves	Sold in market	Leaves	Sold in market	Leaves	Sold in market
16				Dried leaf powder		
Other						
17	Leaves	Fumigated to repel mosquitoes	Leaves	To repel insects	Leaves	Homemade shampoo
18	Whole plant	As a fertilizer	Seed	As a poison	Leaves	As a mosquito repellent
Religious						
19	Not used		Not used		Not used	

Table 2. Different uses of *Murraya koenigii*

Altitudinal zones	Medicinal usage (%)	Traditional usage (%)	`Culinary usage (%)	Commercial usage (%)
Zone-A	55	20	100	10
Zone-B	60	25	100	20
Zone-C	65	35	100	5

Table 3. Usage of different parts of *Murraya koenigii*

Usage (%)	Altitudinal zones		
	Zone-A	Zone-B	Zone-C
Whole plant	30	25	40
Leaves	100	100	100
Seeds	15	25	0
Bark	0	10	0
Roots	0	0	5

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