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Utility of ash gourd (*Benincasa hispida*) in Dharwad, Karnataka state

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ABSTRACT

A study was conducted to document the utility of antioxidant rich ash gourd and its products in Dharwad, Karnataka. The rural and urban households as well as Ayurvedic health centres were surveyed using a pre-tested questionnaire. Majority of the respondents belonged to the age group of 30-40 years with more literates in urban households. Religion influenced the utility of the antioxidant rich ash gourd. About 50 per cent of urban respondents and 53.33 per cent of rural folk utilized the fruit for the preparation of Sandige alone. A dehydrated product Sandige was the single product available in the retail outlets of Dharwad city which was packed and procured from the local cottage industries and self-help groups. Ash gourd in the form of juice (50-100 ml) was suggested twice in a day in the Ayurvedic healthcare centres during obesity, nausea, acidity and epilepsy. Thus high costs, lack of awareness and ideological aspects keep the fruit away from regular consumption and this adversely affects vegetable business.

Keywords: Ash gourd; utility; healthcare centres

INTRODUCTION

Cucurbits form an important and a big group of vegetables cultivated extensively in India. This group of vegetables consists of wide range of vegetables either used as salad (cucumber), for cooking (gourds), for pickling (cucumber) or candied (ash gourd). The ash gourd fruit is generally prized for its medicinal value which has been explored by Ayurvedic practitioners. It has special potency as nervier tonic. It alleviates nausea (Vatta) and acidity (Pitta Dosha). The properties of fruit changes according to stage of ripening. It is interesting to note that the tender fruits alleviate acidity, medium ripened fruits alleviate cough whereas fully ripened fruits alleviate all of them. (www.herbalcureIndia.com).

The present investigation was carried out to study the utility of antioxidant rich ash gourd and its products in Dharwad, Karnataka state.

Ash gourd (*Benincasa hispida*) is considered as one of the underutilized horticultural crops. It is cultivated, traded and consumed locally. Ash gourd is composed of moisture (96.50%), low calories (10 kcal), protein (0.40 g), fat (0.1 g), carbohydrates (1.9 g), ascorbic acid (1 mg), fiber (0.80 g), ash (0.39 g), iron (0.8 mg) and calcium (30 mg) (Gopalan et al 1997). Apart from the nutritional value many regional cucurbitaceous crops are used for medicinal purposes, income generating and poverty alleviation programmes (Yadav et al 2003). High costs, lack of awareness and ideological aspects keep the fruit away from regular consumption and adversely affect vegetable business. Information on the utility of ash gourd and its products can aid in understanding the gap for utility and help in creating awareness about the nutritional and therapeutical value of the fruit among the general public. Effective use of such neglected species can help in increasing awareness of its value and promote efforts to conserve it.

Ash gourd also referred as winter melon belongs to Cucurbitacae family which is extensively used for therapeutic purposes in the Ayurvedic medicine. It is commonly found to grow on sandy loam soils in warm sunny light and stable temperature. Although fruit requires hot weather to grow it can be stored throughout the winter. The surface of the fruit is covered with the waxy hairy layer which helps in extending its shelf-life. In spite of the favorable conditions in India fruits are underutilized. Maximum consumption of the fruit in Karnataka is in the form of Sandige a traditional dehydrated product prepared using natural sunlight. Occasionally fruits are also used for culinary purposes in the Brahmin families however the usage of the fruit is very limited as the cut opened fruits are highly perishable and being bigger in size (>1 kg) it is difficult to utilize the whole fruit in a short period of time. Most of the people are unaware of its medicinal value which might be the reason for its limited use at household level. Sandige prepared by Lingayat people is more nutritious as it involves black gram. However when fried puffiness and crispiness were more evident in Sandige prepared with puffed rice .The residue of the fruit is used as animal feed in the villages. In China chunks of the matured fruit are prepared as soup often with pork. In Nepal the fruits are picked or sliced dried and mixed with mango fruit and formed into a ball to fry later (Mark et al 2007). Various other uses of ash gourd in India have been reported by Satyanarayana Swamy et al (2010). The inner soft portion (pith) is used in preparation of tomato ketchup whereas tender leaves are used as spinach in the preparation of Bhaji. Differences in religion were depicted wrt method of preparation of Sandige among the rural and urban households .

In the Ayurvedic healthcare centres about 50-100 ml of juice from the mature ash gourd fruits is prescribed during obesity,

acidity, nausea and epilepsy. According to Ayurvedic experts ash gourd is useful in preventing sugars from being converted into fat. Antacid action of the fruit maintains the pH of the body and counteracts the acidity created in the stomach as a result of the intake of acidic foods like soft drinks, fried foods etc. Due to its diuretic action it increases the output of urine and washes out waste products from the body. Not only the extract of the ash gourd possess the curative properties but a delicious sweet prepared from pulp of the fruit by boiling in the sugar syrup is used as a medicine to increase weight during tuberculosis, weakness and anemia.

In Chinese medicine the rind of the ash gourd fruit is used to treat urinary dysfunction and seeds are used for preventing vaginal discharge. The fruit is used to treat summer fever, epilepsy, lung diseases, asthma, cough and internal hemorrhage. The rind is also used to treat diabetes and seeds to expel tapeworms (www.indianetzone.com). The juice extracted from mature ash gourd is effective in case of mercury poisoning and snake bites. Literature survey reveals that there is no published information on the components of the ash gourd extracts which are beneficial in curing the various diseases or disorders and its mechanism of action. Nevertheless there is hardly any documentation of the cases being benefited by ash gourd extract.

MATERIAL and METHODS

Utility of ash gourd was studied in two phases covering urban and rural households as well as Ayurvedic healthcare centres in Dharwad. Dharwad city was divided into five equal locations covering Hosayellapur, Murgamaath, Koppadakeri, Malamaddi and Srinagar areas. Six families from each locality were randomly selected to elicit information on utility of ash gourd using a pre-tested questionnaire. Two villages viz Rampur and Veerapur of Dharwad Taluk where ash gourd is commonly grown were purposively selected. A total of 15 families from each village were randomly selected to form a sample size of 30. Details about ash gourd, its utility, place of procurement, processing and storage were collected through personal interview. A survey was also carried out to elicit information on utility of ash gourd and its products for medicinal purposes in five randomly selected Ayurvedic healthcare centres of Hubli-Dharwad city. Information regarding medicinal utility of ash gourd, method of processing and mode of storage were collected using questionnaire. The data thus obtained were analysed using simple mean and percentage (Gupta 1984).

RESULTS and DISCUSSION

The demographic profile of the urban and rural respondents is given in Table 1. It was found that 73.30 per cent of urban

and 83.30 per cent of rural respondents belonged to the age group of 30-40 years whereas 16.60 per cent respondents from both the places belonged to the age group of 40-50 years. About 10.00 per cent of the urban respondents were between 50-60 years of age. Cent per cent of the urban and 26.60 per cent of the rural respondents were literate and rest were found to be illiterate. Among the urban respondents 76.60 per cent were housewives, 23.40 per cent government employees, whereas 70.00 per cent of the rural respondents were agriculturists and 30.00 per cent labourers.

About 93.30 of urban and 46.60 per cent rural respondents lived in the nuclear families; 6.60 of urban and 53.30 per cent rural respondents lived in the joint families. Among the urban respondents 30 per cent had small, 63.30 per cent had medium and 3.30 per cent had large family size. A reverse trend was evident in the rural area as 10 per cent of rural respondents had small, 43.30 per cent had medium and 36.60 per cent had big family size. Among the total urban respondents 93.30 per cent belonged to Hindu and 6.60 per cent belonged to Muslim religion. Similar pattern was observed in rural community also.

Table 2 elicits the information regarding the utility of ash gourd and its byproducts among the rural and urban households. About 53.3 rural and 50.00 per cent urban population used mature ash gourd for the preparation of Sandige. Urban people procured the fruit from the local vegetable vendors whereas people from the villages used the fruits that were grown in the kitchen garden. About 13 urban and 25 per cent rural respondents preferred to consume Sandige monthly and 86.6 urban and 75 per cent rural population preferred to use it occasionally.

Hindu Lingayat people prepared Sandige by grinding the soaked black gram along with spices like green chilly, garlic, cumin seeds and salt; grated ash gourd along with seeds was mixed with ground paste and sundried. People from Brahmin and Maratha community prepared Sandige by mixing the grated ash gourd with spice mix (cumin seeds, salt, green chilli, Asafoetida) and slightly soaked puffed rice and sundried. Sandige was stored for 6-8 months in the air tight aluminum or plastic box with or without polythene cover. Byproducts of the ash gourd fruit viz peel, seed and pith were used as feed for animals in the rural areas whereas these were discarded in urban sectors. It was also noticed that people from both the places were unaware about the therapeutic values of ash gourd fruit.

Ayurvedic healthcare centres of Hubli-Dharwad city used ash gourd to treat various diseases or disorders (Table 3). About 60 per cent of healthcare centres utilized the ash gourd fruit in the form of

Table 1. Demographic profile of urban and rural respondents

Particulars	Urban (n= 30)		Rural (n= 30)	
	Frequency	Percentage	Frequency	Percentage
Age (years)				
30-40	22	73.30	25	83.30
40-50	5	16.60	5	16.60
50-60	3	10.00	-	-
Education				
Literate	30	100.00	8	26.60
Illiterate	-	-	22	73.30
Occupation				
Housewife	23	76.60	-	-
Agriculturist	-	-	21	70.00
Laborer	-	-	9	30.00
Govt employee	7	23.40	-	-
Type of family				
Nuclear	28	93.30	14	46.66
Joint	2	6.60	16	53.30
Family size				
Small (up to 4 members)	9	30.00	3	10.00
Medium (5-7 members)	19	63.30	13	43.30
Large (>8 members)	2	3.30	11	36.60
Religion				
Hindu	28	93.30	28	93.30
Muslim	2	6.66	2	6.66

Table 2. Utility of ash gourd fruit in urban and rural households

Particulars	Contents	Urban (n= 30)		Rural (n= 30)	
		Frequency	%	Frequency	%
Utility of ash gourd fruit		15	50	16	53.3
Form	Mature	15	100	16	53.3
Place of procurement	Vendors	15	100	-	-
	Kitchen garden	-	-	16	100
Products prepared	Sandige	15	100	16	100
	Others	-	-	-	-
Frequency of consumption of products	Monthly	2	13.3	4	25
	Occasionally	13	86.6	12	75

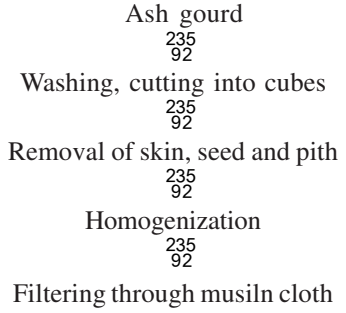

Fig 1. Flow chart of processing of ash gourd into juice

Table 3. Utility of ash gourd in Ayurvedic healthcare centres

Particulars	Frequency (n= 5)	%
Utility of ash gourd	3	60.0
Diseases /disorders		
Nausea	2	66.6
Acidity	3	60.0
Epilepsy	3	60.0
Obesity	3	60.0
Prescribed form (juice)	3	60.0
Frequency (twice a day)	3	60.0
Quantity (50-100 ml)	3	60.0

juice during acidity, nausea, epilepsy and obesity treatment. About 50-100 ml of juice was prescribed twice in a day with or without any taste enhancers.

The protocol followed for the extraction of the juice from the matured ash gourd fruit in the healthcare centres is depicted in Fig 1. Mature fruits were washed and cut into small cubes and seeds and pith of the fruits were separated manually. Juice from the peeled fruits was extracted in the electrical grinder and strained through muslin cloth. Extracted juice was stored in refrigerator. Satyanarayana Swamy et al (2010) reported that ash gourd juice when given during empty stomach to hyper-lipidemic subjects for 45 days recorded slight increase in HDL and decrease in VLDL cholesterol. There is an urgent need for designing the further studies with ash gourd in these aspects.

It can be concluded that the utility of the ash gourd fruits can be enhanced by developing suitable processing technology which aids in safeguarding the interests of growers during glut period and also fruit can be commercially exploited.

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