

Consumption of Traditional Spices among Urban Households of Rajasthan

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Abstract

The country India is famous as the “Home of Spices”. A spice is an integral component of any cuisine and it performs numerous functions like adding taste, colour and flavour to food. Apart from these, they have been proved to improve digestion, reduce cholesterol, improve blood glucose levels, prevent chronic diseases, and have anti-inflammatory, antibacterial, antioxidant, antimutagen and anticancer properties. Consumers today are looking for natural cures and ways of improving health, thus spices are gaining medicinal importance.

Spices are made able to consume after post-harvest processing, commercially and at domestic level. With a perceptible transition in the lifestyle of the Indian population, the commercial spice processing is taking steps forward towards producing convenient and safe products for the consumers. However, the processing of spices in reference to the consumption practices at the ground level need to be assessed for material information which is essential for the processing industries as well.

Thus, the present study was conducted to assess the consumption pattern of spices and spice processing followed in the urban households of Rajasthan. The sample comprised of 200 urban women who were interested in participation and could provide crisp and authentic information. A questionnaire was prepared for collection of the data and the respondents were contacted personally in Udaipur City. The results revealed practices of people with respect to the form of consumption of individual spice and spice mixes. It was seen that majority of respondents were consuming spices as whole and with simple processing i.e. in ground form. It was also observed that although most of the people purchased branded spice mixes from market, yet about 1/4th of the families preferred to process the spices and prepare the mixes at home.

Keywords— Spices, Processing, Consumption, Antioxidants, Medicinal Spices

INTRODUCTION

India is considered as the “Home of Spices”. She enjoys the distinction of being among the largest producer and consumer of spices as well as the fastest growing spice market in the world (Spice Board of India, 2010). Of the 109 useful spices listed in the ISO, India produces 63 spices and exports approximately 10% of its produce to about 150 countries worldwide. Since ancient times, spices are an important part of the Indian System of Medicine (Ayurvedic Pharmacopoeia), along with their widespread traditional use.

The Indian Spice Board has identified 52 spices that have been used as traditional medicines for centuries. Some of these spices, especially found in the hills, have immeasurable medicinal

properties. Recent studies show that the active ingredients in these spices have many medicinal properties that contribute to their healing properties. Extensive research by this laboratory has shown that capsaicin from chili peppers, pipericin from black pepper, gingerone from ginger, curcumin from turmeric, anethol from anise seeds, and thymol from bishop's seeds are powerful antibacterial and anti-inflammatory, anti-pollution properties that can be interpreted as analgesic, anti-diabetic, cholesterol-lowering, and anti-oxidant properties, and their traditional usage. However, the biological activity of spices depends on the amount of active ingredient contained in each spice. Cultivation and preservation of this special type of spice contributes to the protection of biodiversity.

Therefore, it is time to identify these species and grow and preserve them due to their therapeutic properties.

Spices are plants with intensive and distinctive flavours and aromas considered indispensable in the culinary art, used as natural additives in fresh and dry form. The spices have been an integral ingredient of Indian diet. According to the ISO, the term spice or condiment applies to “such natural plant or vegetable products or mixtures thereof, in whole or ground form, as are used for imparting flavour, aroma and piquancy to and for seasoning food”. Spices can be conventionally classified based on the degree of taste (Peter, 2001) into following categories –

1. **Hot Spices** (capsicum (chillies), pepper (black, white), ginger, mustard)
2. **Mild Spices** (paprika, coriander)
3. **Aromatic Spices** (allspice, cardamom, cassia, cinnamon, clove, cumin, dill, fennel, fenugreek, mace, nutmeg)
4. **Herbs** (basil, bay, dill leaves, marjoram, tarragon, thyme)
5. **Aromatic Vegetables** (onion, garlic, shallot, celery)

Apart from making food palatable (adding taste, colour and flavour), they have been proved to improve digestion, reduce cholesterol, improve blood glucose levels, prevent chronic diseases, and have anti-inflammatory, antibacterial, antimutagen and anticancer properties. Spices have been identified as the concentrated sources of natural antioxidants and though in lesser quantity can contribute significantly to the total intake of plant antioxidants than many other food groups like vegetables, fruits and cereals (Dragland *et al.*, 2003; Tapsell *et al.*, 2006). Extensive studies have shown the physiological effects of antioxidants from spices which strongly indicate that many active principles of these, work as excellent nutraceuticals and hence, rightly being termed as the *Super Healing Foods*. With mounting researches linking diet/ food components to disease prevention and treatment, the focus on health benefits of commonly available foods is experiencing a revival of interest. The philosophy that food can be health promoting beyond its nutritional value is gaining

acceptance within the public arena and among the scientific community (Farmakalidis, 1999). Consumers today are looking for natural cures and ways of improving health, thus spices, having numerous therapeutic benefits, are gaining medicinal importance.

In a cross-sectional study conducted among 703 participants by Isbill *et. al* (2018), it was seen that almost half of the participants showed the desire of knowing the health benefits of spices (48%), cited friends and family as sources of information about spices (50%) and those willing to use spices as a complementary and alternative medicine therapy were 51%. Most of the participants (> 50%) were aware about or had used 8 of the 10 spices listed. The majority of participants (54%) consumed one or more spices daily and mentioned ginger (64%), garlic (58%) and cinnamon (56%) as spices that promote health and well-being.

The frequency of spice consumption was found to be higher in urban households as compared to rural households in a study by Bhathal *et al* (2020). The maximum average consumption frequency of urban and rural households was observed for red pepper powder (5.00) and turmeric powder (5.00). The largest proportion of urban and rural households (76% and 72%) prefer unroasted spices. The highest average intake and range were red pepper powder (3.19 g, range 0.35 to 5.23 g) in urban women and observed in rural women (2.41 g, range 0.25 to 3.75 g). Spice intake from individual dishes revealed the maximum serving size of red pepper powder obtained from urban vegetables > dal > curry formulas and rural household dal > vegetables > curry formulas. The average amount of spices consumed by adult women in urban areas was 10.04 g per day, which was higher than the amount of spices consumed by adult women in rural areas per day.

From Field to Platter – spice processing: Any food produced in the field needs to be processed to certain extent to be able to meet the requirements of the consumer. In the early days of traditional food processing the main aim was confined to preservation to maintain a supply of wholesome, nutritious food during the year and

in particular to preserve it for hungry periods. The food processing sector not only focuses on the main objective of providing a safe nutritious diet to maintain health, but generation of wealth for the producer and seller have also become increasingly important. The food processing industry has changed from traditional to modern food processing and the types of product processed as well. Today, consumers' demands are influenced by modern lifestyle and advertising and thus the industrial food processing sector has emerged to meet-out to the end-users with food having longer shelf-life, has been enriched or value-added and convenient to use/ consume.

Spices are produced from a large variety of plant parts such as rhizomes, barks, leaves, fruits, seeds, etc. Due to pronounced heterogeneity of raw material, processing methods differ to some extent. However, some basic unit operations that are commonly applied to a majority of spices include pre-treatment, chemical treatment, curing, drying, cleaning, sorting, grading and packaging (Figure 1). These processes should ensure proper conservation of the basic qualities of spices for which they are valued, viz. aroma, flavour, pungency or bite, colour, appearance, etc. Considering each and every step under postharvest technology of spices, drying remains the most important operation. At the time of harvesting, spices like all other agricultural produce invariably contain high moisture that must be brought down to a desired level at which attack of micro-organisms would be minimum (Jose and Joy, 2004).

After processing, the spices are usually packed and stored for some time before they are delivered to traders and processing industries. Spices are generally packed in flexible and semi-rigid containers. The development of new and improved transparent plastic films, foils, laminates, high-speed film-sealing machines, decorators, gas flushers, has created new opportunities for spice packaging (Pruthi, 2001). Besides the drying operation, storage is another critical control point and the control of storage temperature and humidity is indispensable to

prevent damages of the spice material (Ute *et. al*, 2007).

A spice may be used as whole, or in ground form, but with advancing technology in spice processing industry, a consumer is provided by number of speciality and value added products like essential oils, oleoresins, vinegar infusions, spice extracts/ essence, instant spices, liquid spices, spice concentrates, liquid *masalas*, spice pastes, spice powders, encapsulated soluble spice seasonings, etc. which are by and large costly.

While a consumer is offered with vast variety in the market, still some people follow traditional domestic practices and thus prefer to process spices at home as per their requirements. However, the urban households are influenced with westernized eating patterns and lifestyles. The women are the backbone of the routine eating patterns followed among families. Due to paucity of time and lifestyle requirements during the present times, the households do not seem to be indulged in spice processing and are not aware of the medicinal benefits of spices. Thus, it was found to be necessary to assess the awareness level and processing of spices in reference to the consumption practices for material information. The information thus collected can be utilized to generate awareness among the women, who can further percolate the importance of spice use and bring to practice among their families. Hence, the present study was undertaken specifically to gain knowledge about consumption trends of spices, type of use and purchasing practices among the families and the data was collected using a structured questionnaire.

METHODOLOGY

The present investigation was undertaken among the urban households of the city. A total of two hundred women willing to participate were contacted for gaining crisp and authentic information regarding consumption practices of spices. The women were selected with the aim of targeting the section of population that is cooking the meals for the entire family as they could provide information regarding practice as well as knowledge regarding the topic.

Development of Tool and Collection of data:

A structured questionnaire was developed to find out various aspects of spice, spice mix and household spice processing including information about form of consumption and purchasing pattern. Of the five categories of spices in terms of degree of taste, the study was focused on aromatic spices as they are not very hot but are very rich sources of antioxidants, anti-inflammatory and other health promoting benefits.

The information thus collected through the designed questionnaire was compiled, tabulated and analysed using frequency distribution and percentages of variables studied.

RESULTS AND FINDINGS:

The findings obtained from the present study have been discussed under following sub-heads:

Socio-economic and family profile:

Majority of respondents selected for the study were of 41-50 years of age (34 per cent). All the respondents were literate with 38 per cent graduate and 39 per cent post graduate. The result indicated that of the families under investigation, 28 per cent were belonging to Rs. 11,000 to Rs. 20,000 monthly income range and 20 per cent to the Rs. 21,000 to Rs. 30,000 range. The data revealed majority of working women belonged to nuclear families (77 per cent) were as 23 per cent to joint families. Seventy-two per cent respondents belonged to general category. Majority of selected respondents were reported to be having vegetarian eating habits (83 per cent).

Consumption Trends of Spices:

Form of consumption of Spices: Data collected revealed highest use of spices as whole and in ground form (Table 1). Among the 15 aromatic spices, maximum use of fennel and cumin was in whole form (65.25 and 64.29 per cent) whereas use of cinnamon and coriander was seen in ground form (59.29 and 51.72 per cent). Very minimal use of essence (cardamom, about 1 per cent) was reported.

Consumption of Ready-to-use Powdered Spice Mix: Eighty five percent of the respondents consumed powdered spice mixes (Table 2) out of

which, 79.41 per cent purchased these mixes from market and the rest 20.60 per cent prepared the mixes at home. The respondents preferred to prepare spice mixes at home because of traditional practices, better hygienic conditions and purity of ingredients and provision for altering amount and choice of ingredients according to their own preferences and habits.

Type of Mixes consumed: The data in table 3 shows the type of mixes consumed - purchased from market and prepared at home. A total of 16 mixes used could be enlisted by the responses obtained. Out of these, *achar masala*, *chai masala*, *chat masala*, *garam masala*, *sambhar masala*, *thandai masala* and *vada-pao masala* were among those prepared at home.

Purchase of Branded or Non-branded Mix: Seventy-eight per cent of the respondents were found to be purchasing branded powdered spice mixes (Table 4). The most popular voted brand was the MDH brand. The rest 22 per cent families purchased non-branded mixes as they were cheap and easily available.

Reason for Spice consumption: Maximum respondents (43%) mentioned that they consumed spices for taste, whereas, 21% consumed spices since spices are one of the ingredients of Indian recipes, 22% consumed spices since they have been following the traditional practices of cooking (Table 5, Figure 2). Only 14% respondents were taking spices for their medicinal benefits. It could be observed that the medicinal benefits of spices have gained emphasis after the pandemic times where the benefits of spices have shown positive results in prevention and control of infections.

CONCLUSION

This investigation was undertaken with the purpose of finding out the consumption trends of spices among families. The data was collected from urban women with the aim of targeting the section of population that is cooking the meals for the entire family as they could provide information regarding practice as well as knowledge regarding the topic. It was evident

that utmost consumption of spices was in whole and ground form. But, the use of extract/ essence, which is a convenience product, was seen almost negligible. This may be because of higher cost of spice essence or lack of awareness among people. Also, it could be noted that though maximum families were purchasing ready-to-use powdered mixes from market, still about 1/4th of the respondents preferred to prepare them at home as they could obtain better hygiene and purity of ingredients. Furthermore, about a quarter of respondents did not purchase branded mixes largely because of higher costs.

Therefore, it can be concluded that the prospect of the spice processing industries could be focused on affordable prices for the variety of ready-to-use spice mixes and better promotion of newer products so as to attract a larger segment of population as consumers for the value-added and convenience products.

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Figure 1: Conventional process for production of spices (steps in dotted lines are optional)

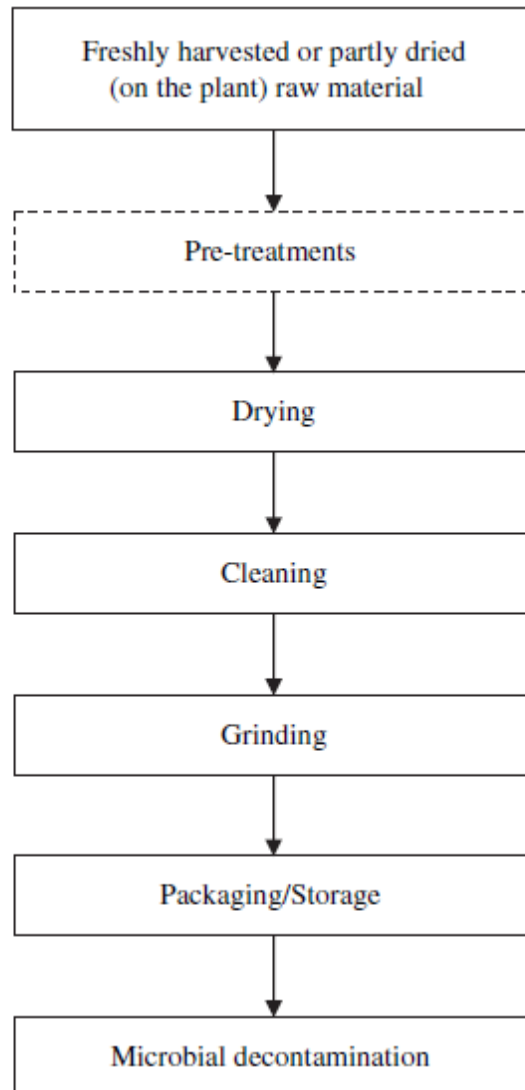


Table 1: Form of consumption of spices in food*

S.No.	Form in food	Spices														
		Ajowan	Allspice	Anise	Caraway	Carda mom	Cassia	Cinnamon	Clove	Coriander	Cumin	Dill	Fennel	Fenu greek	Mace	Nutmeg
a.	Whole	56.16	-	13.08	13.33	50.39	43.75	26.55	54.40	26.72	64.29	-	65.25	56.52	7.53	6.86
b.	Ground	34.93	-	28.04	25.71	47.29	33.04	59.29	37.60	51.72	34.13	2.00	27.97	30.43	41.94	38.24
c.	Small pieces	-	-	0.93	-	0.78	8.93	8.85	2.40	6.03	-	-	0.85	-	2.15	1.96
d.	Flaked	-	-	-	-	0.78	-	-	-	-	-	-	-	-	-	-
e.	Halved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
f.	Desiccated	-	-	-	-	-	1.79	-	-	3.45	1.59	-	-	-	-	-
g.	Essence	-	-	-	-	0.78	-	-	-	-	-	-	-	-	-	-
h.	No answer	8.90	100.00	57.94	60.95	-	12.50	5.31	5.60	12.07	-	98.00	5.93	13.04	48.39	52.94

*Values depict percentage of respondents

Table 2: Consumption of Ready-to-use Powdered spice mix*

Consuming powdered mix	Yes	No
Purchasing mix from market	79.41	-
Preparing mix at home	20.60	-

* Values depict percentage of respondents

Table 3: Type of Spice mix consumed

S.No.	Type of mix	Purchased	Prepared
1	Achar mix	Y	Y
2	Biryani mix	Y	N
3	Chai mix	Y	Y
4	Channa mix	Y	N
5	Chat mix	Y	Y
6	Chicken mix	Y	N
7	Chutney mix	Y	N
8	Garam mix	Y	Y
9	Jeeravan mix	Y	N
10	Kitchen King mix	Y	N
11	Pao Bhaji mix	Y	N
12	Rajma mix	Y	N
13	Sambhar mix	Y	Y
14	Shahi Paneer mix	Y	N
15	Thandai mix	Y	Y
16	Vada Pao mix	N	Y

*Y = Yes, N = No

Table 4: Purchase of branded or non-branded spice mix*

Purchase by Brand name		Yes	No
S.No.	Name of common brands of India		
1	Ashok	4.50	-
2	Badshah	2.70	-
3	Catch	10.81	-
4	Everest	19.82	-
5	Goldy	5.41	-
6	MDH	37.84	-
7	Pukar	1.80	-
8	Select	1.80	-
9	Shri	1.80	-
10	Upkar	12.61	-
11	Any	0.90	-

*Values depict percentage of respondents

Table 5: Reason for spice consumption

S.No.	Reason for spice consumption	Responses*
1	Taste	43
2	Requirement of recipe	21
3	Traditional practice	22
4	Medicinal Benefit	14

*Values depict percentage of respondents

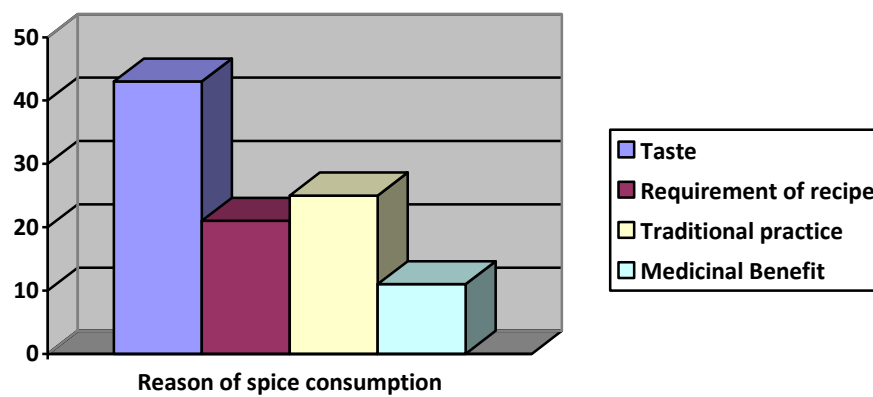


Figure 2: Reason for Spice consumption