

# Knowledge and use of preservation of fruits and vegetables among rural women of Nainital district

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■ **ABSTRACT** : The present study was made with an objective to find out the knowledge and use of preservatives in fruits and vegetables. The investigation was carried out in four villages of Ramnagar and Bhimtal Panchayat Samiti of Nainital district of Uttarakhand state, covering 100 rural women. Interview schedule was developed by the investigators for data collection. Frequency and percentage were used for analysis of data for present study. The results indicated that rural women had knowledge about the importance of fruit and vegetable in human diet whereas 62 per cent of the respondents did the preservation due its availability in off season. Majority of the respondents used oil and salt as a preservative (75%) whereas 76 per cent respondents used clean and dry containers for preparing items and 85 per cent of the respondents did not use the food items during menses time.

■ **KEY WORDS** : Preservation, Fruits and vegetables, Knowledge, Method

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India is an agriculture based country. Hundreds of fruits and vegetables types are grown in all parts of India. India produces a wide variety of fruits and vegetables. It ranks second in fruits and vegetables production in the world, after China. As per National Horticulture Database, 2010 published by National Horticulture Board, during 2009-10, India produced 71.516 million metric tones of fruits and 133.738 million metric tones of vegetables (Chadha, 2011). The area under cultivation of fruits stood at 6.329 million hectares while vegetables were cultivated on 7.985 million hectares. A large variety of fruits and vegetables are grown in India. Of these, mango, banana, citrus, pineapple, pear, plum, apricot, almond and walnut (temperate fruits) and aonla, ber, pomegranate, annona, fig, phalsa (arid zone fruits) are important. Amongst fruits, the country ranks first in production of bananas (28%) papayas, mangoes (39%) lemons and limes. Mangoes, walnuts, grapes, bananas, pomegranates account for larger portion of fruits exported from the country while onions, okra, bitter gourd, green chilles, mushrooms and potatoes contribute largely to the vegetable export basket (Chadha, 2011).

The importance of fruits and vegetables to a healthy

diet has been known for quite some time. But result of the studies proves that very few people eat the recommended amount of fruits and vegetables essential for a healthy diet. Fruit and vegetables are packed full of goodness and often contain a number of essential vitamins and minerals that cannot be found in other types of foods or they may contain higher levels of these nutrients than other foods. In addition to their great taste, fruits and vegetables are packed full of many essential vitamins and minerals, including many micronutrients that are not included in packaged vitamin supplement ([www.wideworldoffood.com](http://www.wideworldoffood.com)). Fruits and vegetables that are in season are usually quite a bit cheaper than those that must be shipped hundreds or even thousands of miles, and they are generally much fresher too. District Nainital is a unique district of Kumaun having tropical type, subtropical type, temperate, sub alpine and alpine zones in its lap. Apple orchards are found mainly in Ramgarh Mukteshwar belt. Beside this peach, pears, apricot, citrus fruits, kaffir lime, strawberry, hills banana grown in the hilly track, Lichi of Ramnagar makes Nainital a main fruit growing district ([www.kumaoninfo.com](http://www.kumaoninfo.com)). The rural people in India do not

consume adequate amount of fruits and vegetables as they lack knowledge and awareness towards the use of this. The rural people need to be educated about the importance and usage of fruits and vegetables in the diet. Hence, the present study was conducted with the following objectives:

- To study the knowledge of rural women regarding concept, importance and functions of fruits and vegetables.
- To study the methods used by rural women for preservatives fruits and vegetables.
- To study the knowledge of rural women regarding selection of fruits and vegetables for preservation.

## ■ RESEARCH METHODS

The present study was conducted in Ramnagar and Bhimtal Panchayat Samities of Nainital district of Uttarakhand state as there are good production of vegetable and fruits. From the two selected Panchayat Samiti, four villages namely, Bail Pokhra, Dikhuli, Jyolikot and Mangoli were selected on the basis of production of fruit and vegetables. For sample selection, village wise list of rural women in the age group of 25-45 years was prepared and from each village, 25 rural women were selected to form a sample of 100 rural women. Data were collected with the help of structured interview schedule and the questions were asked in local dialect (Kumaoni). Frequencies and percentages were used for analysis of data statistically.

## ■ RESEARCH FINDINGS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been presented under following heads:

### Knowledge of the respondents regarding concept, importance and function of fruits and vegetables:

Food preservation is the process of treating and handling food to stop or slow down spoilage (loss of quality, edibility or nutritional value) and thus allow for longer storage.

Preservation usually involves preventing the growth of bacteria, yeasts, fungi, and other micro-organisms as well as retarding the oxidation of fats which cause rancidity. Table 1 highlight that in general, 33 per cent of the respondents knew that preservation prevents, the food from spoilage whereas 20 per cent of the respondents had the knowledge that preservation keeps the food items for longer time period. Regarding the importance of preservation, more than half of the respondents (62%) had reported that after preservation of fruits and vegetables, they could be available in off season. Forty one per cent of the respondents mentioned that preservative helps in preventing spoilage of foods, 30 per cent knew that its save money and very few (18%) had knowledge that preserved items bring variety in food. Regarding the knowledge of respondents about function of

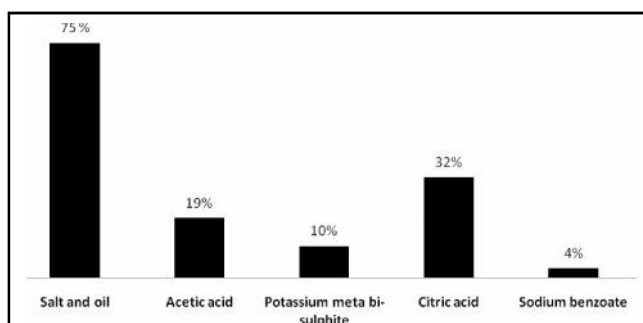
**Table 1 : Knowledge regarding concept, importance and functions of fruits and vegetables among respondents (n=100)**

Sr. No.	Categories	F/%
<b>Concept of preservation</b>		
1.	Prevents food spoilage	33
2.	Preservation of food item for longer time	20
<b>Importance of preservation</b>		
1.	Availability in off season	62
2.	Avoid spoilage of foods	41
3.	Varieties in routine food	18
4.	Save money	30
<b>Functions of fruit and vegetables in diet</b>		
1.	Good source of energy	52
2.	Help in formation of blood	22
3.	Help in physical growth and development	36
4.	Protect the body from diseases	42

fruits and vegetables in diet, data presented in Table 1 depicts more than half of the respondents (52%) knew that fruits and vegetables are good source of energy whereas 42 per cent reported that they protect the body from different diseases. Nearly one third of the respondents (36%) reported about their role in the growth and development of body. Only 22 per cent of the respondents reported that the functions of fruit and vegetables help in the formation of blood. This indicates that the respondents in general had average knowledge about functional aspects of fruits and vegetables.

Regarding method of fruit and vegetable preservation, more than half of the respondents (57%) knew that pickle, sauce, murraba, chutney and squash are the means of preservation for longer time period. Less than half of the respondents (43%) mentioned that fruits and vegetables can be kept for longer time through sun drying method as it retains all the moisture from the perishable fruits and vegetables and kills the microbes.

Regarding uses of different preservatives, Fig. 1 portrays that majority of the respondents (75%) used salt and soil as one of the important means to save pickle and sauce from spoilage. Thirty two per cent respondents used citric acid as



**Fig. 1 : Distribution of the respondents by their use of different preservatives**

**Table 2 : Knowledge of the respondents regarding methods of preservation (n=100)**

Sr. No.	Method of preservation	F/%
1.	Sun drying of fruits and vegetables	43
2.	Preparation of pickling, sauce, murraba, chutney and squash	57

a preservative in preparing squash whereas 19 per cent mentioned about the use of acetic acid in preparing apple, peach, pears, apricot, and citrus fruits sauce. Very few respondents (10 and 4 %) used potassium bi-sulphite and sodium benzoate in sauce and chutneys.

**Knowledge of rural women regarding selection of fruits and vegetables for preservation:**

Due care is needed in preserving the fruits and vegetables as they contain high amounts of moisture and are liable to spoil quickly. Reflecting in the Table 3 that majority of the respondents (76%) were aware about using of clean and dry container for preparing and preserving food items. Nearly half of the respondents (46%) knew that the fresh fruit and vegetables should be used for preservation whereas 32 per cent respondents reported for the use of glass jars with proper lids to seal them and keeping them in airtight containers during

**Table 3 : Knowledge of rural women regarding selection of fruits and vegetables for preservation (n=100)**

Sr. No.	Selection criteria	F/%
1.	Selection of fresh fruits and vegetables	46
2.	Use of clean and dry container for preparing food items	76
3.	Keep preserved items in airtight container	32
4.	Use of chemical preservative in correct amount	16
5.	Store preserved items in cool place	19
6.	Avoid to touch in menses time	85

rainy season. Few respondents (16-19%) had knowledge about use of chemical preservative and storing preserved items in cool place. It was astonished that 85 per cent of the rural

respondents did not touch the container in the menses time as they perceived that it spoils the ingredient kept in container and after seven days of the period could touch the container.

**Conclusion:**

Rural women of Nainital district had average information about importance of preservation and they knew different methods of preservation either it was chemical preservative or sun drying. Mostly women took care towards long shelf - life of the preserved fruit and vegetable products like use of dry and clean container and selection of fresh fruits. Majority of the rural women used salt and oil as a preservative whereas average number of the rural women knew the concept and importance of preservation. It is thus suggested that effective training and demonstration should be organized for rural women by government and non-government organization so that women can enhance their capabilities so that they can take up an activity as a small –scale enterprise and become a successful entrepreneur in their field and motivate others also.

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