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Existing drying practices of fresh vegetables in rural areas of Hisar district

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■ **ABSTRACT :** The study was conducted in Hisar district of Haryana state to know the existing sun drying practices of fresh vegetables among rural households. Two villages from Hisar district *i.e. Kaimeri* and *Harita* were selected with a sample of 100 women respondents (50 from each village) who were drying vegetables at home, purposively which were within 25 km from CCS Haryana Agricultural University, Hisar, for easy accessibility. Data were collected with the help of a pre-structured schedule personally by the researchers. It was found that majority of respondents were drying fenugreek leaves (66.00%), followed by *kachar* (53.00%) and red chillies (49.00%) in the months of Nov.-Jan. in the quantity of 3-4 kg and up to 6 months.

■ **KEY WORDS:** Solar radiation, Drying practice, Vegetables

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India is one of the largest producer of fruits and vegetables in the world. About 46.97 million tons of fresh fruits and 110.62 million tones of vegetables are grown in nearly 9 million hectare, consisting nearly 6 per cent of gross crop land (Khader, 2008). It is estimated that 30-35 per cent fruits and vegetables, worth Rs. 30,000 million, perish due to want of post-harvest facilities. Drying and storage are important steps of post-harvest period and if proper drying techniques are adopted at household level, then, the losses during these stages can be minimized. It will also help in increasing the storage life of dried fruits and vegetables.

Several methods of mechanical drying have been also developed which have been used commercially for dehydration of vegetables. These methods include poly-house drying (solar drying), tray cabinet drying, tunnel drying, fluidized bed drying, spray drying, vacuum drying and microwave drying. To provide variety of food in off season as well, it is necessary for the home makers to conserve the variety of their favourite and healthful foods. This can be done easily if she has good quality dehydrated vegetables at her disposal. Such type of food stuffs are especially convenient for working women while non-working women can use this talent for adding to their family income.

The present study was, therefore, planned to survey on existing drying practices of fresh vegetables in Hisar district. Thus, the study was undertaken with the following objective:

– To study the existing solar drying practices of fresh vegetables in rural households.

■ RESEARCH METHODS

Preliminary survey:

It was conducted in Hisar district of Haryana state to study the existing sun drying practices of fresh vegetables among rural households. Two villages from Hisar district *i.e. Kaimeri* and *Harita* were selected purposively which were within 25 km from C.C.S. Haryana Agricultural University, Hisar, for easy accessibility. Data were collected with the help of a pre-structured personally by the researchers. It was suitable coded, tabulated and analyzed using frequencies and percentages.

Screening of vegetables:

It was conducted in Hisar district of Haryana state to

study the existing sun drying practices of fresh vegetables among rural households. Two villages from Hisar district *i.e. Kaimeri* and *Harita* were selected purposively which were within 25 km from C.C.S. Haryana Agricultural University, Hisar, for easy accessibility. Data were collected with the help of a pre-structured personally by the researchers. It was suitable coded, tabulated and analyzed using frequencies and percentages.

Tools and techniques:

For any research work, it is mandatory to indicate the variables considered, along with their measurement procedures. There were two types of variables in the study: independent and dependent. An independent variable is a variable presumed to affect or influence other variables. A dependent variable is a variable presumed to be affected by one or more independent variables. Variables selected for the present study are listed below:

Interview schedule:

An interview schedule was prepared, duly pre-tested, and then finalized for collection of data regarding the existing drying practices of vegetables in selected households. The data were collected personally by the researchers using the finalized interview schedule.

■ RESEARCH FINDINGS AND DISCUSSION

The results of the present study as well as relevant discussions have been presented under following sub heads:

Background profile of respondents:

It is evident from Table 1 that majority of the respondents belonged to the age group of 40 to 65 years (38.00%), high caste (61.00%), were illiterate, (27.00%) and had medium family education status (41.00%). Majority of respondents belonged to joint family (53.00%) and had medium sized family (44.00%). A vast majority of the respondents (95.00%) were non-working, belonged to farming family (52.00%) and had up to 2-5 acres of land (76.00%). Regarding income of the family, more than half of the respondents (55.00%) belonged to medium income group (Rs.5000-10000/- per month). Thirty eight per cent respondents had medium level of mass media exposure and more than three-fourth of the respondents (78.00 %) had low extension contact.

Existing drying practices of fresh vegetables:

The information pertaining to the practice of drying vegetables under open sun followed by rural households was gathered in terms of vegetables dried, month of drying, quantity dried, and storage period. The data regarding these aspects are presented in Table 2.

It was revealed that respondents were drying fenugreek

Table 1: Background profile of respondents (n=100)

Sr. No.	Characteristics	Categories	Percentage
Personal and family variables			
1.	Age	Up to 25 years	25.00
		25-40 years	37.00
		Above 40 years	38.00
2.	Caste	Low	21.00
		Middle	18.00
		High	61.00
3.	Education	Illiterate	27.00
		Primary	18.00
		Middle	18.00
		High School	23.00
		Graduate and above	14.00
4.	Family	Low	30.00
	educational	Medium	41.00
	status	High	29.00
5.	Family type	Nuclear	47.00
		Joint	53.00
6.	Family size	Small (up to 4 members)	31.00
		Medium (5-7 members)	44.00
		Large (more than 7 members)	25.00
Economic variables			
7.	Family	Less than Rs. 5,000/-	15.00
	income	Rs. 5,000-10,000/-	55.00
		Above Rs. 10,000/-	30.00
8.	Land holding	No land	14.00
		2-5 acre	76.00
		Above 5 acre	10.00
9.	Occupation of	Working women	5.00
	respondents	Non-working women	95.00
10.	Family	Farming	52.00
	occupation	Business	26.00
		Landless labour	19.00
		Service	3.00
Communication variables			
11.	Mass media	Low	35.00
	exposure	Medium	38.00
		High	27.00
12.	Extension	Low	78.00
	contact	Medium	15.00
		High	7.00

leaves (66.00%), *kachar* (53.00%), red chillies (49.00%), bittergourd (31.00%), roundgourd (26.00%), clusterbeans (18.00%) and cauliflower (17.00%). Vegetables like green peas and carrots were dried by very few respondents (8.00% and 7.00%, respectively). As regards the month of drying, respondents dried fenugreek leaves in the months of Nov.-Jan. (66.00%) followed by drying of *kachar* in the months of Nov.-Jan (44.00%). Respondents (27.00%) dried red chillies in the months of May-July, while 14.00 per cent respondents dried also it between in Feb-Apr. Bittergourd was dried in May–July (31.00%) and roundgourd in May–July (22.00%). Clusterbeans were dried by all respondents in the months of Nov.-Jan. (18.00%). Respondents (17.00%) dried cauliflower in the months of Nov.-Jan. Green pea was dried in the months of Feb.- April by 8 per cent respondents and 7.00 per cent respondents dried carrots in the months of Nov.-Jan.

As regards to the quantity of drying of vegetables, almost all the vegetables were dried in the quantity of 3-4 kg (*kachar*-43.00%, fenugreek leaves-42.00%, red chillies-33.00%, roundgourd-23.00%, bittergourd-19.00%, carrots-6.00%, green peas-5.00% and cluster bean -2.00%). Respondents also dried between 5-6 kg of these vegetables (fenugreek leaves-24.00%, cauliflower-17.00%), clusterbean and chilly-16.00% each, bittergourd-12.00%, *kachar* -10.00%, green peas and roundgourd-3.00% each and carrot-1.00%).

As far the duration of storage of dried vegetables was concerned, respondents of fenugreek leaves (66.00%), *kachar* (53.00%), bittergourd (31.00%), roundgourd (26.00%), clusterbeans (18.00%) and cauliflower (17.00%) stored these vegetables up to six months. This was followed by 42.00 per cent respondents storing red chillies, and 8.00 per cent respondents storing green pea for 6 months to 1 year. Only 7 per cent respondents stored red chillies for more than 1 year.

It is concluded that majority of respondents dried fenugreek leaves (66.00%), *kachar* (53.00%) and red chillies (49.00%) in the months of Nov.-Jan. Most of the vegetables were stored in the quantity of 3-4 kg and up to 6 months. Madhyan *et al.* (1988) Bhatnagar *et al.* (1998), Mangaraja *et al.* (2001) and Janjai and Tung (2005) have also studied the methods of drying of different types of vegetables.

Conclusion:

It can be concluded that majority of respondents belonged to older age group, high caste, were illiterate, had medium level of family educational status, belonged to joint family and had medium sized family. Mojority of respondents were non-working, engaged in farming (52.00%) and had 2-5 acres of land (76%) with family income of Rs.5,000-10.000/- per month. They had medium mass media exposure and low extension contact. Majority of respondents dried fenugreek leaves, *kachar* and red chillies. Further, solar box temperature was much higher than ambient temperature due to which vegetables dried at faster rate in solar box than under open sun.

Table 2 : Existing drying practices of fresh vegetables **(n=100)**

Attributes	Vegetables								
	Green peas	Cauliflower	Fenugreek leaves	Carrot	Cluster bean	Red chilly	Kachar	Round gourd	Bitter gourd
Percentage of respondents	8	17	66	7	18	49	53	26	31
Month of drying	-	-	-	-	-	-	-	-	-
Feb.-April	8	-	-	-	-	14	-	4	-
May-July	-	-	-	-	-	27	-	22	31
Aug.-Oct.	-	-	-	-	-	8	9	-	-
Nov.-Jan.	-	17	66	7	18	-	44	-	-
Quantity									
1-2 kg	-	-	-	-	-	-	-	-	-
3-4 kg	5	-	42	6	2	33	43	23	19
5-6 kg	3	17	24	1	16	16	10	3	12
Duration of storage									
0-6 months	-	17	66	7	18	-	53	26	31
6-12 months	8	-	-	-	-	42	-	-	-
> 12 months	-	-	-	-	-	7	-	-	-

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