

SENSORY EVALUATION OF DEHYDRATED ONION COMPARED TO FRESH ONION SAMPLES

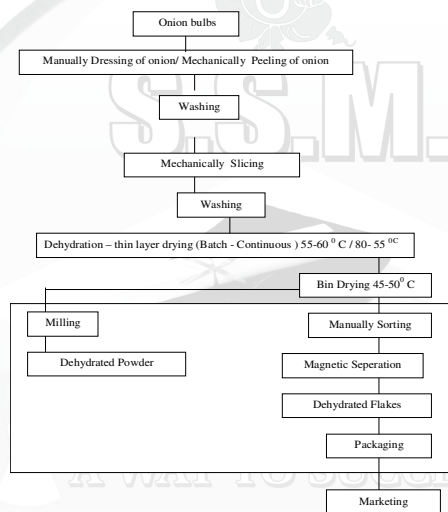
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Sensory evaluation consists of judging quality of food by a panel of judges. Here, sensory evaluation was undertaken for the dehydrated onion compared to fresh onion samples. Onion is the bulb of *Allium Cepa Linn* a biennial plant belonging to liliaceae, or lily family. Onion is the most important but perishable groups grown in our country. India is the second largest producer of onion in the world. Production of onion during 2006-07 is estimated at 6.21 million tones. Exports of all varieties of onion by NAFED and other State Trading Enterprises during 2006-07 were relatively higher at 9.14 lakh tones.² The export potential of onion is quite high and already a large number of dehydration plants in operation in many parts of the country. Drying of onion flakes has the potential to not only reduce the storage losses but it also helps in stabilizing the prices.^{5,6} These dehydration plants use tray dryers for drying the onion flakes. The drying is done using hot air at 55–70 °C. Onion is dehydrated in the form of sliced, large, standard and small chopped, mince, granulated, kibbled, 6 mm dices and ground or onion powder. It is widely used in canned soups, salads, hamburgers, pizzas, dry soup mixes and other fast food preparation. The dehydrated onion products are available in two types i.e. very pungent and mildly pungent.¹ There is a difference between two recipes made from fresh and dehydrated onion. **Therefore, the aim of this investigation is to evaluate the sensory quality of Uttapam and Upma prepared from fresh and rehydrated onion samples.**

METHODOLOGY-The present study was carried out to compare the sensory quality of the dried onion

sample in dry form and on rehydration with the fresh onion sample of same variety and of the market variety. The variety used for drying the “NASIK VARIETY”. The dehydration was carried at SPRERI (Sardar Patel Renewable Energy Research Institute) is one the co-operating centers of the Indian Council for Agricultural

Research (ICAR) in their all India coordinated scheme on renewable energy sources. Development of onion dehydration plant is one of the approved activities of the center under the solar energy component. Fig.- 1 shows the process flow chart of onion dehydration plant (SPRERI). The onion dehydration plants use driers of capacity 1000 kg of fresh onion. The final product usually has a moisture content of about 5-8 % and weighs about 100 kg. The drying time is about 4-5 hours and the driers are used round the clock. For the study market samples of onion were purchased from the wholesale market at Anand, the dehydrated and fresh test samples being



provided SPRERI.

Parameter studies-1. Rehydration ratio. 2. Sensory evaluation of two recipes i.e. Uttapam, Upma.

REHYDRATION PROCESS-Known amount of the dried onion flakes tied in muslin cloth, kept for 1 minute in the boiled water, taken out, drained excess water and blotted dry on a filter paper.⁷ Rehydration Ratio = Weight after cooking / Weight before cooking.

Statistical Analysis-The result were expressed as mean ± standard error of mean, data were analysed with student “t” test to determine the significance of difference³

RESULTS AND DISCUSSION-The present investigation was carried out to evaluate the sensory quality of two recipes where maximum onion is added, i.e. Uttapam, Upma. Rehydration ratio for dehydrated (SPRERI) onion was also determined in

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the present investigation which was 4.5 . Table –1 indicates mean sensory score of Uttapam prepared using different onion samples. Colour of fresh (S) had highest score (4.83) where as fresh (M) and rehydrated (S) showed mean score of 4.5 and 4.16 respectively. Texture of rehydrated (S) highest sensory score of 3.83 while fresh (M) and fresh (S) had a scores of 3.66 and 3.5 respectively. Flavour of rehydrated (S) again showed the highest mean score of 4.0 while fresh (M) showed 3.0 where as the mean score fresh (*S) was 3.66. Overall acceptability of all the three onion samples used had the same mean sensory score 4.0. We can say that the colour of rehydrated (S) was not well accepted when compared to fresh (M & S) but the texture and flavour rehydrated (S) had highest acceptability compared to both fresh onion samples and well accepted ,overall acceptability of Uttapam made using all the three onion samples showed the same acceptability.

Table:1 Mean sensory scores of Uttapam prepared using different onion samples.

Group	Sensory Attributes			
	Colour	Texture	Flavour	Overall acceptability
A	4.50 ± 0.34	3.66 ± 0.45	3.00 ± 0.45	4.00 ± 0.37
B	4.83 ^a ± 0.17	3.50 ± 0.34	3.66 ± 0.43	4.00 ± 0.37
C	4.17 ^a ± 0.31	3.83 ± 0.48	4.00 ± 0.45	4.00 ± 0.26

· Mean of six panelists ± SEM. · Statistically significant at (P < 0.1). · A = Fresh (Market). · B = Fresh (SPRERI). · C = Rehydrated (S|RERI).

The percentage difference of sensory attributes of Uttapam were also calculated and the colour of fresh (M) Uttapam showed minimum decrease (6.83) while rehydrated (S) Uttapam showed maximum decrease (13.87 %). Texture of fresh (M) Uttapam showed an increase of 4.57 % ,whereas that of rehydrated (S) showed a maximum increase of 9.42 %. The flavour of fresh (M) Uttapam showed maximum decrease of 18.03 %., while rehydrated Uttapam showed 9.28 % ,percentage of overall acceptability was nil, since all the three showed the similar values.

Table –2 shows mean sensory scores of Upma prepared using fresh(S) showed the highest score of 4.33 whereas rehydrated (S) showed lowest score of 3.33 while fresh (M) was 3.83. Texture of Upma prepared using fresh (s) and rehydrated (S) showed a similar mean score of 4.0 while that of fresh (M) was lower 3.50 .Flavour of Upma prepared using fresh (M) and fresh (S) whereas rehydrated (S) showed the same mean score of 4.33 whereas rehydrated (S) showed a very low score of 2.1 . Overall acceptability of Upma from fresh (S) had the highest mean score while for

fresh (M) it was lower of 3.50 ,whereas rehydrated (S) showed very low score of 2.50.Colour ,flavour and overall acceptability of Upma prepared using rehydrated onion sample was poor. The percentage difference in the sensory attributes for Upma prepared using fresh (M) and rehydrated (s) samples compared to fresh (S) onion sample.The colour of Upma using fresh (M) onion sample showed a minimum decrease of 11.55 % while rehydrated (S) showed a maximum decrease of 23.09% .Texture of fresh (M) showed a decrease of 12.5 % when compared to fresh (S).Flavour of rehydrated (S) showed a maximum decrease of 50.11 % when compared to fresh(M) ,whereas overall acceptability ,fresh (M) onion sample showed a minimum decrease of 15.87 % while rehydrated (S) showed a maximum decrease of 39.90 % when compared with fresh(S). Upma prepared using rehydrated (S) onion sample was not well accepted as compared to both the fresh onion sample .

Table – 2 Mean sensory score of Upma prepared using different onion samples.

Group	Sensory Attributes			
	Colour	Texture	Flavour	Overall acceptability
A	3.83 ± 0.40	3.50 ±0.34	4.35 ^a ±0.21	3.50 [±] 0.22
B	4.33 ± 0.42	4.00±0.45	4.33 ^b ±0.33	4.17 ^d ±0.31
C	3.33 ± 0.49	4.00±0.45	2.17 ^{a,b} ±0.54	2.50 ^{c,d} ±0.22

· Mean of six panelists ± SEM. · Statistically significant at (P< 0.02)^c,(P<0.01) ^{a,b,d}. · A = Fresh (Market). · B = Fresh (SPRERI). · C = Rehydrated (SPRERI)

CONCLUSION-Sensory evaluation on preparing Uttapam did not show much variation between the fresh and the dehydrated ,whereas when Upma was prepared the dehydrated onion samples showed a significantly lower score compared to fresh onion.

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