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Varietal Preference based on Sensory Evaluation of Cucurbits

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ABSTRACT

The study was conducted at HMAARI-Leh (Ladakh), SKUAST-Kashmir, SKUAST-Jammu and three villages of Leh distict on 100 respondents to analyse the perception of varietal preference based on sensory evaluation of cucurbit varieties. Twenty-five respondents were selected from (HMAARI-Leh) SKUAST-Kashmir, twenty-five respondents from SKUAST-Jammu and 50 farmers were selected through a proportionate random sampling technique from three villages. The maximum number of persons responded through senses after consuming five varieties of cucumber but only three were reported very tasty such as *Sainia* followed by *Albela,* and Jointer, respectively. The *No.-1* variety of long melon i topped in taste followed by Rajasthan local. The highest number of persons responded favourably for *Kalia* variety of watermelon rather than the *Sugar baby* variety. The study indicated that the human perception was different from other persons about the taste of cucurbit varieties.

Introduction

India has a rich and multifarious variety of foods, and its various foods consumption by human beings are strongly related to religion, social identity, and other cultural factors, as well as traditional farming practices (Vij, et al., 2022). Fruits and vegetables are good sources of fibre, minerals, vitamins and some beneficial phytochemicals such as carotenoids, phenolics and glucosinolates (Barrett et al., 2010). In India, a large scale of the population consumes vegetable and fruit salads. Most of the persons choose tasty and favourable varieties of food before consuming it, whether they lived in urban or rural areas. Perception of food consumed is a key factor in acknowledging the need for behavioural change to improve food quality (Gombi-Vaca et al., 2017). Sensory analysis is an interdisciplinary science comprised of information and methods adapted from psychology, physiology, statistics, linguistics, food science nutrition, medicine, chemistry, physics, sociology, anthropology and hope of other fields (Edgar Chamber IV, 2019). Senses are the most important factor for food. It also is a basic concern for nutritionists and dietitians who develop healthier recipes and tastes (Stone H, Sidel J L, 2004). Human perception of flavour is fickle. While genetic, environmental and horticultural factors can impact the production and accumulation of plant flavour compounds, human perception of these stimuli is not equal. Reed and Knaapila (2010) say, "Perhaps no single human trait has as many person-to-person differences as abilities to taste and smell, "and human genetic differences

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are at least partially responsible for differences in perception of the same tasting food samples (Wieczorek, 2019).

In the Leh district of Ladakh's average altitude (elevation) is 5753 metres above sea level. Two districts of the union territory of Ladakh are Leh and Kargil. Excluding the Kargil district, the population of the Leh district has increased from 40,000 in the year 1951 to 1,48,171 in the year 2021 (Anonymous, 2021). Vegetable production has increased every year and magnificent progress has been made since 1960 in promoting vegetable cultivation in the Leh district of Ladakh region. The total area under vegetable production in the Leh district is 368 ha with a production of 75440 qtls (Anonymous, 2021). In India, cucumber, long melon and watermelon etc. are consumed in large quantities during all seasons, especially in the summer season. Cucurbits varieties are consumed in high quantities by the people of Ladakh during the summer season. Cucumber, Long-melon, watermelon, etc. are produced successfully in the Indus region of Leh- Ladakh for the last few years. Cucumber and Long-melon for salad are sown and produced only in poly houses and watermelon fruit salad sown only in low tunnel by the farmers in the district. The investigator took some varieties of cucurbits from High Mountain Arid Agriculture Research Institute, Stakna-Leh, during the summer season in 2021, for the perception of varietal preference based on sensory evaluation of cucumber, long melon, and watermelon by the respondents. The aim of this study was to evaluate the taste or flavour by their senses, which variety is tastier than the other varieties of cucurbits after consumed.

Methodology

The study was undertaken to assess the perception of varieties of cucurbits based on sensory evaluation. A total of 100 respondents were selected for sensory evaluation of the Cucurbitaceae family. Twenty-five respondents were selected from (HMAARI-Leh) Sher-e-Kashmir University of Agriculture Sciences and Technology-Kashmir, and Twenty-five respondents were selected from the main campus of Sher-e-Kashmir University of Agriculture Sciences and Technology-Jammu, through random sampling techniques (which include Scientific, Non-scientific, and Skilled staff) and 50 farming community respondents were selected through proportionate random sampling technique from three villages namely; Stakna (Total population=355), Hemis (Total population=313), and Chuchot-Gongma (Total population=1836). Accordingly resulted 7, 6 and 37 respondents from the selected villages of Leh district for data collection using a pre-structured interview scheduled (Anonymous, 2020). The most frequently used evaluation scale was the 9-point hedonic scale for sensory evaluation by researchers around the world (Meilgaard et al., 1999, Lawless and Heymann, 1998). Hedonic scale (9-point scale) was used by the investigator to measure the varietal preference of the respondents based on the sensory evaluation of cucurbits. The respondent's perceptions of the sensory evaluation of cucurbits especially, Cucumber, Long-melon and Watermelon were analyzed on the basis of a five-point continuum used such as 'Like Extremely', 'Like very Much', 'Like Moderately', 'Like slightly', and 'Dislike' with a score of 5,4,3,2 and 1, respectively. The perception items of respondents about varietal preferences based on sensory evaluation of cucurbits were assigned marks. One mark was assigned for each correct (Yes) answer and zero to wrong or no reply with ranks. The data were analysed using both descriptive and non-descriptive analysis.

Results and Discussion

The table-1 shows the perception of the taste of cucumber varieties such as *Aviva, Koyal, Jointer, Albela*, and *Sainia* by the respondents. After tasting the *Aviva* variety of cucumber, a maximum of 26 per cent number of respondents liked extremely the flavour, followed by 25 per cent like slightly and 16 per cent like moderately. Only 13 per cent like very much and in 20 per cent of respondents dislike the flavour of *Aviva variety* with a mean score of 0.60. After tasting the *Koyal* variety of cucumber, the data revealed that a maximum of 38 per cent of respondents liked slightly the flavour and almost 22 per cent of respondents dislike the flavour of this variety, 19 per cent liked moderately and

Table 1. Perception of the taste of Cucumber varieties by the respondents.

S. No.	Cucumber varieties	Like Extremely (%)	Like Very Much (%)	Like Moderately (%)	Like slightly (%)	Dislike (%)	Mean Score
1	Aviva	26	13	16	25	20	0.60
2	Koyal	11	10	19	38	22	0.50
3	Jointer	22	15	13	40	10	0.60
4	Albela	24	20	20	10	26	0.61
5	Sainia	31	13	20	20	16	0.65

10 percent respondents like extremely with a mean score of 0.50. 40 per cent of respondents like slightly who tasted *jointer* variety of cucumber flavour followed by 22 per cent liked extremely. Similarly 15 per cent and 13 per cent of respondents like very much and like moderately followed by 10 per cent for dislike the flavour of *jointer* variety of cucumber with a mean score of 0.60.

The table-2 indicates that more than 70 per cent of respondents have agreed to feel the varieties of cucumber were different from one another. Although 25 per cent of respondents have agreed for all varieties of cucumber were not tasty. 73 per cent of respondents agreed for all varieties of cucumber were tasty. Almost 80 per cent of respondents have agreed to feel water content in cucumber was not tasty. More than 65 per cent of respondents perceived the crunchiness was there in cucumber and 24 per cent of respondents agreed to feel bitterness. Further, 68 per cent of respondents felt the sweetness. Only 20 per cent of respondents felt it sour. 77 per cent of respondents agreed to it's easy digestiblity. Almost, 90 per cent of respondents perceived to notice that cucumber was seedless. 65 per cent of respondents agreed for the rind was appealing. The results are in agreement with the findings of Jiyawan et al., (2010); Kirti et al., (2015); Sindhu (2017); Sobeho (2017); Singh et al (2020) and Kaur, and Anand, (2021) who studied the perception of different aspects in different regions.

Table 3 reveals that 22 per cent of respondents like extremely the taste of the *No.-1* variety of Long-melon, 24 per cent each like moderately and like slightly. Only 20 per cent of respondents liked very much whereas 10 per cent of respondents disliked *the No.-1* variety of long melon with a mean score of 1.60. In case of *Rajasthan Local variety* of long melon, 23 per cent of respondents like extremely and like moderately followed by 22 per cent of respondents who like slightly it, 21 per cent of respondents liked very much and 11 per cent of respondents who dislike the flavour of Rajasthan local with a mean score of 1.62.

The data shown in the table-4 reveals that more than 80 per cent of respondents agreed to feel the varieties of long melons were different from one another and 12 per cent of respondents have agreed for all varieties of long melon were not tasty. 67 per cent of respondents have agreed for feel all varieties of long melon were tasty, 78 per cent agreed for feel water content in long melons was not tasty, 67 per cent perceived the crunchiness was there in long melon. Only 10 per cent of respondents felt bitterness in it. Further, 72 per cent of respondents felt the sweetness of a long melon. Only 10 per cent perceived it sour and 78 per cent of respondents agreed to feel it's easily digestible. Only, 26 per cent noticed that long melon was seedless. 90 per cent of respondents have agreed for the rind was appealing in long melon.

Table 2. Perception about the statements of cucumber salad by the respondents

S. no.	Perception Statements	Response Category	Percentage of the respondents	Rank
1	Do you feel the varieties of cucumber were different from one another?	Yes	79	III
2	Do you feel all varieties of cucumber were not tasty?	Yes	25	VIII
3	Do you feel the varieties of cucumber were very tasty?	Yes	73	V
4	Do you feel the water content in the cucumber was satisfying?	Yes	80	II
5	Do you feel the crunchiness was there in the cucumber	Yes	65	VII
6	Did you feel the bitterness?	Yes	24	IX
7	Do you feel the sweetness?	Yes	68	VI
8	Do you feel the sour?	Yes	20	
9	Did you feel it's easily digestible?	Yes	77	IV
10	Do you notice that the cucumber was seedless?	Yes	90	I
11	Rind was appealing or not	Yes	65	VII

Table 3. Perception of the taste of Long-melon varieties by the respondents.

S. No.	Long- Melon varieties	Like Extremely (%)	Like Very Much (%)	Like Moderately (%)	Like slightly (%)	Dislike (%)	Mean Score
1	No.-1	22	20	24	24	10	1.60
2	Rajasthan Local	23	21	23	22	11	1.62

Table-5 shows that 27 per cent of respondents like extremely the *Kalia* variety flavour, followed by a maximum of 23 per cent of respondents who like it very much, 15 per cent like it moderately, 15 per cent like slightly the *Kalia* variety of watermelon whereas, 20 per cent of respondents dislike the *Kalia* variety flavour with a mean score of 0.89. About *Sugar Baby* , 21 per cent of respondents like very much followed by 20 per cent like extremely, and 14 per cent like moderately with a mean score of 0.95. Although, 29 per cent of respondents dislike the sugar baby variety flavour. Similarly, *BSS-2000 variety* was liked slightly by 30 per cent of respondents followed by the 19 per cent of respondents' like very much and 18 per cent like extremely with a mean score of 0.96. Only 17 per cent of respondents dislike the *BSS-2000* variety flavour of watermelon.

Table 6 reveals that as high as 90 per cent number of respondents have agreed water content in the watermelon was satisfying which ranked one followed by 89 per cent of respondents who agreed to feel the sweetness in watermelon. Besides, 85 per cent of respondents agreed for the varieties of watermelon were different from one another, and 80 per cent of respondents perceived that it was easily digestible. 79 per cent of respondents for its taste and some varieties were not tasty. 50 per cent of respondents felt the crunchiness in watermelon. Similarly, 40 per cent of respondents agreed for the rind were appealing in watermelon. 15 per cent of respondents felt all varieties of watermelon were not equally tasty. Only 13 per cent respondents agreed to feel the watermelon was seedless and 10 per cent of respondents agreed to feel the bitterness and the sourness each, respectively.

Conclusion

It may be concluded from this study that the maximum number of persons responded through senses after consuming five varieties of cucumber, out of which only three varieties such as *Sainia* followed by *Albela*, and *Jointer*, were found very tasty respectively. Among, for the two varieties of long melon *No.1* variety was felt very tasty followed by *Rajasthan locals*. Similarly, after consuming three varieties of watermelon; *Kalia* topped for taste rather than *Sugar baby*. Overall, the study indicates human beings have different tastes, different senses, and different perceptions, so the taste or flavour of our tongue decided which one is better than the different varieties of cucumber, long melon, and watermelon (Cucurbitaceae family). In fact, the person chooses or prefers tasty food with their sensory organs.

Table 4. Perception about the statements of long melon salad by the respondents.

S. No.	Perception Statements	Response Category	Percentage of the respondents (%)	Rank
1	Do you feel the varieties of long melons were different from one another?	Yes	89	II
2	Do you feel all varieties of long melon were not tasty?	Yes	12	VII
3	Do you think the varieties of long melon were tasty and some varieties were not tasty?	Yes	67	V
4	Do you think the water content in the long melon was satisfying?	Yes	78	III
5	Do you feel the crunchiness was there in the long melon	Yes	67	V
6	Did you feel the bitterness?	Yes	10	VIII
7	Do you feel the sweetness?	Yes	72	IV
8	Do you feel the sour?	Yes	10	VIII
9	Did you think it's easily digestible?	Yes	78	III
10	Do you notice that the long melon was seedless?	Yes	26	VI
11	Rind was appealing or not	Yes	90	I

Table 5. Perception of the taste of watermelon varieties by the respondents.

S. No.	Watermelon varieties	Like Extremely(%)	Like Very Much(%)	Like Moderately(%)	Like slightly(%)	Dislike (%)	Mean Score
1	Kalia	27	23	15	15	20	0.89
2	Sugar Baby	20	21	14	16	29	0.95
3	BSS-2000	18	19	16	30	17	0.96

Table 6. Perception about the statements of watermelon fruit salad by the respondents**.**

S. No.	Perception Statements	Response Category	Percentage of the respondents (%)	Rank
1	Do you feel the varieties of watermelon were different from one another?	Yes	85	III
2	Do you feel all varieties of watermelon were not tasty?	Yes	15	VIII
3	Do you feel the varieties of watermelon were tasty and some varieties were not tasty?	Yes	79	V
4	Do you feel the water content in the watermelon was satisfying?	Yes	90	I
5	Do you feel the crunchiness was there in the watermelon	Yes	55	VI
6	Did you feel the bitterness?	Yes	10	X
7	Do you feel the sweetness?	Yes	89	II
8	Do you feel the sour?	Yes	10	X
9	Did you feel it's easily digestible?	Yes	80	IV
10	Do you notice that the watermelon was seedless?	Yes	13	IX
11	Rind was appealing or not	Yes	40	VII

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