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ASSESSMENT OF EATING AND COOKING QUALITIES OF RICE GENOTYPES THROUGH SENSORY EVALUATION IN BIHAR

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ABSTRACT

Sensory evaluation was conducted at two locations for two best preferred rice genotypes in PVS mode. At ARI, Patna, Rajendra Sweta ranked first followed by RAU 748-18-6 followed by Rajendra Mahsuri-1. Rajendra Sweta was the most preferred variety because of the taste, flavour, aroma, sweetness, softness and colour of cooked rice. At Sakraurha, the local variety MTU 7029 ranked first followed by RAU 729-12-44 followed by RAU 731-2-201. There was a difference between visual choice during preference analysis and selection based on sensory evaluation.

Key words : *Participatory varietal selection, sensory evaluation, mother trial.*

Rice, the most important cereal crop in the world is cultivated under diverse agro-ecosystems in India as well as in Bihar. Farmers are a key to all contemporary development concerns – food security, environmental sustainability, poverty alleviation, population and rural social development. Our goal is not only obtain the food security but also development of high quality food to meet the demand of domestic and international consumption. Recognizing such important quality rice in crop production, it is necessary to identify farmers' criteria and perception in varietal selection. This will helps rice breeders to breed good quality rice variety by incorporation of farmers' criteria as well as extension workers to develop the effective transferring strategies of quality rice (Chi *et al*., 2007).

To facilitate and accelerate adoption of the varieties, it is necessary to identify men and women farmers' criteria and preferences in selecting rice varieties in their specific rice environments (Borjas 1997). The present investigation was attempted to study the best preferred lowland lines for sensory evaluation for eating and cooking quality after Participatory Varietal Selection (PVS).

MATERIALS AND METHODS

After selection of visually best performing entries through Preference Analysis (PA) involving male and female farmers and breeders, the entries along with the local checks were tested for their eating and cooking quality. The selected entries with the check were coded to avoid biasness and were cooked simultaneously and separately**.** Male and female farmers were asked to assess the eating and cooking qualities of the lines/varieties included in the farmer-managed trials. Each farmer was given to eat cooked rice one by one with drinking water in between two genotypes so as to nullify the taste, aroma etc of the previously eaten rice and finally ranked based on specific weights for a given criteria. Sensory evaluation was done at two locations ARI, Patna and Sakraurha, Jehanabad for the selected lines through PVS having same set of 23 entries at both the locations in mother trial.

RESULTS AND DISCUSSION

At ARI, Patna, 75 farmers participated in the evaluation and Rajendra Sweta ranked first followed by RAU 748-18-6 followed by Rajendra Mahsuri-1. Rajendra Sweta was the most preferred variety because of the taste, flavour, aroma, sweetness, softness and colour of cooked rice. RAU 748-18-6 followed by Rajendra Mahsuri-1.were least preferred because it is not transparent, not sweet and soft as Rajendra Sweta (Table-1). Analysis of rice preference of male and female farmers revealed that female farmers ranked Rajendra Sweta as first followed bu Rajendra Mahsuri-1 followed by RAU 748-18-6. Paris *et al.* (2008) also emphasized role of female farmers in the selection of a particular rice variety as per their need. The choice of male farmers did not match with the female farmers as they ranked RAU 748-18-6 as first followed by Rajendra Sweta followed by Rajendra Mahsuri-1 (Table-2).

Table-1 : Sensory evaluation summary by the farmers of best chosen lines from Mother trial at Agricultural Research Institute, Patna.

Code/Variety		Count		Relative Weight		Combined Weight	Rank
		Acceptable	Not Acceptable	Ranking	Rating		
113	R. Sweta	25	0	37.09	37.76	37.42	1
209	RAU 748-18-6	25	0	35.76	37.40	36.58	2
314	R. Mahsuri-1	22	3	27.15	24.84	26.00	3
Total		72	3	100	100	100	

Table-2 : Sensory evaluation summary report for male and female of best chosen lines from Mother trial at Agricultural Research Institute, Patna.

Code/Variety		Count				Relative Weight				Combined Weight		Rank	
		Acceptable		Not Acceptable		Ranking		Rating					
		Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
113	R. Sweta	3	22	0	0	38.89	36.84	56.67	35.18	47.78	36.01	1	2
209	RAU 748-18-6	3	22	0	0	22.22	37.59	12.67	40.77	17.44	39.18	3	1
314	R.Mahsuri-1	3	19	0	3	38.89	25.56	30.67	24.05	34.78	24.80	2	3
Total		9	63	0	3	100	100	100	100	100	100		

Table-3 : Sensory evaluation summary by the farmers of best chosen lines from Mother trial at Sakraurha, Jehanabad.

Code/Variety		Count		Relative Weight		Combined Weight	Rank
		Acceptable	Not Acceptable	Ranking	Rating		
465	RAU 731-2-201	36	1	28.38	27.70	28.04	3
610	RAU 729-12-44	37	0	31.53	29.03	30.28	2
835	MTU 7029	37	0	40.09	43.27	41.68	1
Total		110	1	100	100	100	

Table-4 : Sensory evaluation summary report for male and female of best chosen lines from Mother trial at Sakrurha, Jehanabad.

Code/Variety		Count				Relative Weight				Combined Weight		Rank	
		Acceptable		Not Acceptable		Ranking		Rating					
		Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
465	RAU 731-2-201	11	25	0	1	36.36	25.00	56.67	23.58	36.91	23.29	1	3
610	RAU 729-12-44	11	26	0	0	31.82	31.41	12.67	29.19	30.23	30.30	3	2
835	MTU 7029	11	26	0	0	31.82	43.59	30.67	47.23	32.86	45.41	2	1
Total		33	77	0	31	100	100	100	100	100	100		

Similarly at Sakraurha, 111 farmers participated in the evaluation Jehanabad, the local variety MTU 7029 ranked first followed by RAU 729-12-44 followed by RAU 731-2-201 (Table-3) Basis of preferences were taste, sweetness, softness, colour and non-glutinous of cooked rice. Analysis of rice preference of male and female farmers revealed that female farmers ranked RAU 731-2-201 as first followed by MTU 7029 followed by RAU 729-12-44 while the preferences of male farmers remained unchanged (Table-4). There was a difference between visual choice during preference analysis and selection based on sensory evaluation. Thus, the breeders should consider eating and cooking qualities of the new lines/varieties in the development of future stress tolerant varieties considering the likes and dislikes of the farmers.

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REFERENCES

1. Paris, T. R., Singh, A., Cueno, A. D. and Singh, V. N. (2008). Assessing the impact of participatory research in rice breeding on women farmers: a case study in eastern Uttar Pradesh, India, *Expl Agric. 44:* 97–112
2. Borjas, Partricia Howard. (1997). Gender Studies in Agriculture and Rural Development. Wageningen Agricultural University. Home Center for Rural Development. Sociology. Homepage. Internet
3. Chi,T. T. N., Liem, P. V. and Paris, T. (2007). Farmers participation in rice variety selection. *Omonrice 15:* 159-163.