



RESEARCH ARTICLE

TRADITIONAL PADDY VARIETIES, CULTIVATION AND PRODUCTION

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ABSTRACT

Organic farming is a production system that avoids or largely excludes the use of synthetically produce agricultural inputs like fertilizers, pesticides, growth regulators, live stock feed additives etc. Besides, the economic value of rice is largely determined by the milling quality of the rice varieties. Increasingly, consumers are also interested to get rice which possesses good cooking and eating qualities. In view of the health benefits of organic crops and the quality demands of the consumers, the present study was under. The results of this study highlighted that Neelam samba, karudan samba, kullagkar, mapilai samba, sigappukavuni, thuyamalli, milagu samba, seeraga samba, had acceptable physical, nutritional, cooking, and milling qualities. It was also observed that parboiled milling procedure yields better quality rice than raw milled rice.

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INTRODUCTION

More than 90% of the world's rice is grown and consumed in Asia, where 60% of the calories are consumed by 3 billion Asians (Khush, 1997). Organic farming is gaining momentum during recent times due to awareness of people towards environment and food safety. Organic agriculture comes across as a promising opportunity for farmers of Uttarakhand, especially the tribals, small and marginal farmers in the rainfed region or regions where traditional low input farming is practiced (Singh et al., 2017b). Rice is the staple food crop of world after wheat and the demand of organic rice is increasing due to its export potential. Basmati rice is regarded as the king of rice and is cultivated for its subtle aroma, long grain and delicious taste. It is priced high owing to better organoleptic quality characteristics but its demand is very high in other countries (Singh et al., 2017a). There is always a continuous search for agronomic improvement to optimize farming system under organic farming and needs suitable varieties to realise its potential (Kokare et al., 2014). Despite the potential benefits of organic farming in terms of better soil health and quality of produce, maintenance of high yields is one of major challenge under organic farming systems (Tilman et al., 2002). Modern cultivars have been selected by plant breeders under conventional systems and they may not perform well under organic farming systems where they are grown in stressed

environment without addition of external inputs that is entirely different to those in which they were selected (Ceccarelli, 1996; Murphy et al., 2007). Rice grain quality is determined by its physical and physicochemical properties. Physical properties include kernel size, shape, milling recovery, degree of milling and grain appearance (Cruz & Khush, 2000). Physical quality has a great importance in commercial rice production as it highly influences on the final output as well as the consumer demand which are directly contribute to the economic profitability of the grower and miller.

Study area

Thanjavur is located at 10^o8'0"N to 10^o48'0"N and 79^o9'0"E to 79^o15'0"E. The city is an important agricultural centre located in the Cauvery Delta and is known as the "Rice bowl of Tamil Nadu". Thanjavur is administered by a municipal corporation covering an area of 36.33 km² (14.03 sq mi). Thanjavur district covered a total geographical area of 3602 Sq.Kms. The district has well laid out roads and railway lines connecting all major towns within and outside the state. For administrative purpose the district has been bifurcated into 8 taluks and 14 blocks. The district capital is Thanjavur, which is a major town with municipal status. Thanjavur district is bounded on the north east by Nagapattinam district, north by Tiruchirapalli, Perambalur and Cuddalore districts, east by Thiruvavur District, south-east by Palk strait, west by Pudukkottai and north-west by Tiruchirapalli district.

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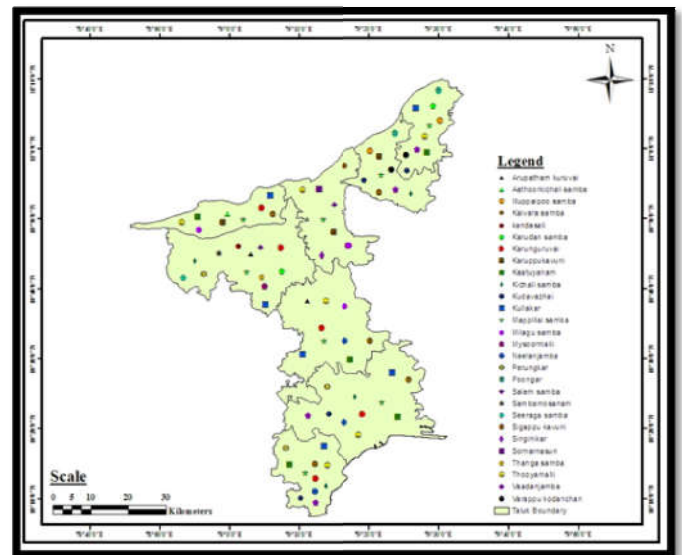
Table 1. Important location of paddy cultivation (2005-2016) in Thanjavur District, Tamil Nadu

S.No	Locations	Varieties
1	Thennavai	Mappilai samba
2	Kannathakudi	Milagi samba
3	Mandalakottai	Aruvatham kuruvai
4	Palamuthur kudigadu	Kattuyanam
5	Puvathur	Athur Kichali samba
6	Ayangudi	Karug kuruvai
7	Sethurayan kudikadu	Kullagkar
8	Ichankottai	Salam sanna
9	Korukkai	Kichali samba
10	Keelapalayam	Thuyamalli
11	Athiyur	Karudan samba
12	Cholapuram	Ottadam
13	Karuppur	Perugkar
14	Asur	Kudavazhai
15	Thennampalagai	Kuliyadichan
16	Kothagudi	kappa samba
17	Maruyhanallur	Kavuni nel
18	Umaiyalpuram	Sambamozan
19	Virmanqudi	Sembalai
20	Mathagudi	Neela samba
21	Kothagai	Puzhuthi kar
22	Mathur	Vai gunda
23	Sathyamangalam	Jil jil vaigunda
24	Kabisthalam	Illuppai pu samba
25	Valuthur	Valan
26	Alavadapuram	Sornamusiri
27	Melakkadu	Rajamudi
28	Semballur	Kandasali
29	Kargavayal	Kanthasala
30	Pannaivayal	Singini kar
31	Palanjur	Mysure malli
32	Thuramadi	seeraga samba
33	Kondakulam	Thulasi vasanai seeraga samba
34	Thuramadi	Pal kudavazhai
35	Palathalu	Kottara samba
36	Punavasal	Kalanamak
37	Mavadukuruchi	Thengai pu samba
38	Paingal	Vadan samba
39	Mdathikadu	Soorag kuruvai
40	Thennangudi	Kar nel
41	Sengamangalam	Kuthirai val samba
42	Palayanagaram	Kaliam samba
43	Ramapuram	Thrupathi saram
44	Vadagai	Sigappu kar
45	Rayanthur	Sornamugi
46	Kurngulam melpathi	Kothamalli samba
47	Puthupattinam	Rathasali
48	Alakudi	Matta nel
49	Chitrakudi	Karuthak kar
50	Rayanthur	Pavani
51	Maruthakkudi	Kaivara samba
52	Kandiyur	Sinnar
53	Kaduveli	Kadai kazhuthan
54	Naducauvery	Marathotti
55	Kanjiyur	Kundu kar
56	Semangudi	Varppu kodanchan
57	Karuppur	Navara
58	Vanaranudis	Savithiri
59	Aavikkarai	Ariyyan nel
60	Vilangudi	Kallundai
61	Sooriyanarkovil	Pommi
62	Avaniyapuram	Poong kar
63	Veppathur	Thanga samba
64	Krishapuram	Sigap pu kavuni
65	Vanankudi	Karup pu kavuni
66	Maruttukakkudi	Pichavari
67	Thirucherai	Pisini
68	Nagarasampettai	Matta nel
69	Nehiyarkovil	Karuvachi
70	VittalurElandurair	Karu avuri

namely - Karungkuruvai, Mapillai samba, Kudaivazhai, Kalanamak, Perungkar, Kovuni, Kullakar and Neelam Samba. Thuyamalli, Sigappukavuni, Aruvathamkuruvai, Salamsanna, Seeragasamba, Illuppaipu samba, Sornamasuri, Thanka samba, Singinikar, Valansamba, Kattuyanam, Kichalisamba, Karudansamba, The variety Karunguruvai has a high content of protein, fat and phosphorous.

Table 2. Number of popular paddy varieties in Thanjavur District, Tami Nadu (2005-2016)

S.No.	Popular paddy variety	Yield in (Kg/Acre)
1	Aruvatham kuruvai	26795
2	Athur kichali samba	14590
3	Illuppai pu samba	29160
4	Kaivara samba	14480
5	Kandasali	13810
6	Karudan samba	40075
7	Karug kuruvai	61555
8	Karup pu kavuni	41510
9	Kattuyanam	62665
10	Kichali samba	63620
11	Kudavazhai	61905
12	Kullag kar	78825
13	Mappilai samba	110174
14	Milagi samba	40100
15	Mysure malli	27280
16	Neela samba	32185
17	Perug kar	34655
18	Poongar	26780
19	Salam sanna	26580
20	Sambamozanam	13675
21	Seeraga samba	56170
22	Sigap pu kavuni	60695
23	Singini kar	13720
24	Sornamusiri	12850
25	Thanga samba	13625
26	Thuyamalli	75470
27	Vadan samba	48580
28	Varappu kodanchan	29800
TOTAL		1131329

**Fig. 3. Number of popular paddy varieties (2005-2016) in Thanjavur District, Tamil Nadu**

This is highly valued by the Siddha physicians; Kalanamak has a high amount of potassium. It is recommended for high blood pressure. Mappillai samba is the highest amount of carbohydrates as well as crude fiber. It is recommended for strength and stamina. In terms of the Glycemic Index (GI) it is seen that all indigenous varieties have a GI that lower than the modern variety. When the GI of the indigenous variety is

Traditional rice varieties are also a big medicine. Currently popular variety we were able to save nearly 28 varieties in Thanjavur District. It was finally decided that twenty eight indigenous paddy varieties would be taken up for study,

compared to the modern variety White Ponni, on a scale when the GI of White Ponni is 100, it was found that the GI of Kullakar, Kovuni, Karungkuruvai and Kalanamak are in the range 50-55 while Mapillai Samba and Kudaivazhai are in the range of 66 - 70.

Conclusion

The quality characteristics of traditional organic Indian rice, investigated in this study indicate that Neelam samba, Karudan samba, Kullagkar, Mapilai samba, Sigappukavuni, Thuyamalli, Milagu samba, Seeraga samba, Karugkuruvai, Kattuyanam, Karuppukavuni, Kichali samba, Kudavazhai, Vadan samba, Illuppaipu samba, Valan samba, Sornamusiri, Thanka samba, Singinikar, is a short bold grain. It was observed that this rice variety had good cooking and milling characteristics. The milling characteristics analysed indicate that the parboiled rice has better quality characteristics such as head rice yield and shelling breakage. This non aromatic rice variety had satisfactory cooking qualities with normal taste characteristics. The gel consistency evaluated indicated that the rice would maintain good grain integrity on cooking. The grain had high gelatinization temperature and medium amylase content. The rice variety indicated good cooked volume and elongation index. Thus it can be concluded that parboiled rice was better in terms of total rice yield because of its superior milling characteristics. He was working with government until the Green Revolution came along (and pesticide and chemical use) and since then he has been working with NGO's and other organizations. He primarily works in Tamil Nadu and in some areas of Karanataka, Kerala, and Andhra Pradesh. India is one of the largest exporters of basmati rice in world (Husain et al, 2009). The consumer demand has increased markedly to pay a premium price for fragrance (Louis et al, 2005).

REFERENCE

- Ceccarelli, S.S. 1996. Adaptation to low/high input cultivation. *Euphytica*, 92: 203–214.
- Husaini, A.M., Parray, G.A., Rather, A.G., and Sanghera, G.S. 2009. Performance of elite basmati rice varieties of sub tropical India under temperate valley conditions of Kashmir, Genetic Resources. *International Rice Research Notes*. 0117-185.
- Khush, G. S. 1997. Origin, dispersal, cultivation and variation of rice. *Plant Mol. Biol.* 35: 25 -34.
- Khush, G. S. 2000. Taxonomy and origin of rice. In: Aromatic Rices (Singh R K, Singh U S, and Khush G S, Eds.). Oxford & IBH Publishing Co., New Delhi. 5-14.
- Kokare, A., Legzdina, L., Beinarovica, I., Maliepaard, C., Niks, R.E., van Bueren, E.T.L. 2012. Performance of spring barley (*Hordeum vulgare*) varieties under organic and conventional conditions. *Euphytica*, 197(2): 279-293. DOI 10.1007/s10681-014-1066-8.
- Louis, M.T.B., Robert, J.H., Quinsheng, J., Russell, F.R. and Daniel, L. E. W.2005. A perfect marker for fragrance genotyping in rice. *Mol. Breeding*. 16: 279-283.
- Murphy, K.M., Campbell, K.G., Lyon, S.R. and Jones, S.S. 2007. Evidence of varietal adaptation to organic farming systems. *Field Crops Res.*, 102: 172-177.
- Rohilla, R., Singh, V.P., Singh U.S., Singh R.K. and Khush G.S. (2000). Crop husbandry and environmental factors affecting aroma and other quality traits. pp 201-216. In: Sing, R.K., Sing, U.S. and Khush, G.S. (Ed.). Aromatic rices. Oxford and IBH Publishing Co. Pvt. Ltd. New Delli, India.
- Singh, D.K., Akhtar, Z., Gupta, S., Srivastava A. and Chakraborty, M. 2017a. Production strategies of organic basmati rice in Tarai region of Uttarakhand, India. *Organic Agri.*, 7(1): 21-30. DOI 10.1007/s13165-015-0143-1.
- Singh, D.K., Gupta Shilpi., Sharma, Y. and Singh, V.V. 2017b. Organic farming: Way for social and nutritional security of small and marginal farmers of Uttarakhand. In: Sovenier and abstracts of International conference on technological advancement for sustainable agriculture and rural development held during Feb. 20-22, 2017, pp104-105.
- Tilman, D., Cassman, K.G., Matson, P.A., Naylor, R. and Polasky, S. 2002. Agricultural sustainability and intensive production practices. *Nature*, 418: 671–677.
