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PY.5 (ARAVINDAR) : A FINE SHORT DURATION RICE VARIETY

S. SRINIVASAN, A. R. MUTHIAH, R.S. PURUSHOTHAMAN, P. KUPPUSWAMY and MOHAN ANDRE SAVERY

Krishi Vigyan Kendra
 Pondicherry

ABSTRACT

A new variety of paddy, PY.5 (Aravindar) has been released by the Government of Pondicherry from the Krishi Vigyan Kendra, Pondicherry for general cultivation. It was found to be a high yielder with good milling and cooking qualities. It recorded a mean grain yield of 6.3 t/ha with an increase of 12.5 and 43.4 per cent over IR.50 and TKM.9 respectively. It is semidwarf (90-95 cm) with long slender grain and matures in 100 to 105 days. It is moderately resistant to brown plant hopper and rice tungro virus with better storage potential.

KEY WORDS : PY.5, Rice, Short Duration, High Yield

Rice is grown in an area of 25,000 ha in the Union Territory of Pondicherry. Fine grained rice varieties are generally preferred by the consumers of this region. The short duration rice varieties cultivated at present generally yield well but lack other desirable qualities such as resistance to insect pests and diseases and good grain characteristics. With this objective, breeding work was concentrated in the Pondicherry Krishi Vigyan Kendra, which resulted in the evolution of a short duration rice PY.5 (P.2409) which possesses moderate resistance to the brown plant hopper (BPH) *Nilaparvata lugens* (Stal.) and rice tungro virus (RTV) and long slender grain in addition to high yield potential.

MATERIALS AND METHODS

P.2409 was evolved by hybridisation and pedigree selection from the cross Swarnadhan/NLR

Table 1. Performance of P.2409 rice culture at Krishi Vigyan Kendra, Pondicherry

Year	Grain yield (kg/ha)		
	P.2409	IR.50	TKM.9
1989	6170	2490	3040
1990	6570	6005	5080
1991	6178	5858	3955
1991	4667	4796	4870
1992	6510	3330	3750
1992	6267	6017	NA
Mean	6060	4769	4139
% on IR.50	127.6	100.0	87.2

9674. The single plant was selected during 1988 and the homozygous line during 1989. It was forwarded to preliminary yield trial (PYT), in 1990, comparative yield trial (CYT) in 1991-92 and to adaptive research trials (ART) and on-farm trials (OFT) in 1992 and 1993 at 35 locations in Pondicherry and Karaikal regions. The culture was tested as IET 13431 in initial yield trial - early during *rabi* 1992, under the All India Co-ordinated Rice Improvement Programme (AICRIP).

RESULTS AND DISCUSSION

In the station trials, P.2409 recorded consistently higher grain yield over the standard varieties IR.50 and TKM.9 registering a mean increase of 27.6 and 46.4 per cent respectively (Table 1). In the OFT, P.2409 recorded higher yield in all the locations tested with an average yield of 6604 kg/ha as compared to 6511 kg of IR.50 and 4693 kg of TKM.9. The increase in yield over IR.50 and TKM.9 was 1.4 and 40.7 per cent respectively (Table 2). The overall performance of this culture under different yield trials has clearly indicated its superiority over IR.50 and TKM.9 in

Table 2. Performance of P.2409 in on-farm trials in farmers' holdings

Year	No. of Trials	Grain yield (kg/ha)		
		P.2409	IR.50	TKM.9
1992-93	35	6604	6511	4693
	% on IR.50	101.4	100.0	72.1

Table 3. Mean performance of the culture P.2409 in the research station and on-farm trials

Experiment	Grain yield (kg/ha)		
	P.2409	IR.50	TKM.9
Krishi Vigyan Kendra, Pondicherry	6060	4749	4139
On-farm trials	6604	6511	4693
Mean	6332	5630	4416
% on IR.50	112.5	100.0	78.4
% on TKM.9	143.4	127.5	100.0

grain yield. It recorded on an average 6332 kg/ha with an increase of 12.5 and 43.4 per cent over IR.50 and TKM.9, respectively (Table 3).

The morphological and quantitative characters of the culture P.2409 are presented in Table 4. It is a semi-dwarf non-lodging type growing to a height of 90-95 cm with profuse tillering. It possesses intermediate panicles. It is endowed with grain type that is as fine as IR.50. The grain is classified as long slender based on the length and L/B ratio of Table 4. Morphological and quantitative characters of P.2409

Characters	Description
Habit	Erect and non-lodging
Plant height	90 - 95 cm
Anthocyanin pigment	Basal leaf sheath and apiculus light purple
Internode	Green
Leaf sheath	Green
Pulvinus	Light green
Septum	White
Ligule	Colourless
Auricle	Colourless
Leaf axil	Erect
Leaf blade	Green
Flag leaf	Erect
Fertile glumes	Green at flowering and straw at maturity
Awns	Absent
Panicle	Intermediate
Husk colour	Straw at maturity
Rice colour	Translucent white
Abdominal white	Occasionally present
Rough rice L x B x T (mm)	9.33 x 2.48 x 1.90
Brown rice L x B x T (mm)	6.72 x 2.16 x 1.90
L/B ratio	3.11
1000 grain weight	22.65 g
Length	Long
Shape	Slender
Maturity duration	100 to 105 days

Table 5. Qualitative characters of P.2409

Characteristics	
Milling characters (Estimated from 100g rough rice)	
Yield of brown rice	79.1 g
Hulling per cent	79.1
Yield of polished rice	72.5 g
Milling per cent	72.5
Yield of head rice	53.7 g
Broken percentage	
Whole rice	61.8
3/4 Broken rice	18.6
1/2 Broken rice	17.0
Cooking characters	
Weight increase	29.4 g
Volume expansion	20.0 ml
Actual time taken for cooking	17.0 mts
Actual water absorption	19.0 ml
Gruel (TSS)	3 rd Bx
Others	
Length of milled rice	6.7 mm
Length of cooked rice	9.9 mm
Linear elongation ratio	1.48

brown rice. It has good cooking quality with high volume of expansion. The hulling, milling and head rice recoveries are 79.1 per cent, 72.5 per cent and 53.7 per cent respectively (Table 5). It is moderately resistant to BPH and RTV. With a duration of 100 to 105 days from seed to seed, it is quite suitable for growing during *Sornavari*, *Kuruvai* and *Navarai* seasons. As per the accelerated ageing test, this culture has better storage potential.

Based on the above desirable features, the culture P.2409 was released as PY.5 (Aravindar) for large scale cultivation by the Government of Pondicherry in 1994.

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