

PY6 (Subramania Bharathi) : A medium duration high yielding fine rice variety

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Abstract : P 2412, a medium duration, high yielding medium slender rice culture was released as PY 6 (Subramania Bharathi) in January, 2000 for general cultivation in Pondicherry and Karaikal regions of the Union Territory of Pondicherry. It matures in 135 to 140 days. It has recorded a mean yield of 5852 kg ha⁻¹ in station trails and 5570 kg ha⁻¹ in the adaptive research trials/on farm trails. Its overall mean yield in 74 locations (1993 to 1999) was 5534 kg ha⁻¹ with 4 (ADT 38) to 19 per cent (Co 43/ I White Ponni) increased yield over checks. It is medium to tall in stature with compact panicle and medium size white grain. This variety is moderately resistant to blast and gall midge. PY 6 can be sown in September and is the best alternative to I White Ponni. (*Key Words* : PY 6, High yielding, Medium duration, Medium slender rice).

Improved White Ponni is a medium slender white rice variety with good cooking quality. The farmers predominantly prefer this rice variety for its quality and marketability. But it is susceptible to blast. Hence, a project was initiated at the Perunthalaivar Kamaraj Krishi Vigyan Kendra, Pondicherry to develop a variety to supplement the I White Ponni with desirable traits viz., grain type, duration and resistance to diseases and insect pests coupled with increased yield. The rice culture P 2412 developed at this Centre, is a medium duration variety coming to harvest in 135 to 140 days. It has been approved for release by State Variety Release Committee during 1999, as an improved variety PY 6 and released in January, 2000 as Subramania Bharathi.

Materials and Methods

PY 6 (P 2412) was developed by hybridisation and pedigree selection from cross IR 19661/CR 1009. The single plant selection was made in 1992 and the homozygous culture was tested in station yield trials during 1993. The preliminary yield trial (PYT) and the comparative yield trial (CYT) were made at the Perunthalaivar Kamaraj Krishi Vigyan Kendra, Pondicherry from 1993 to 1998 and multilocation trials (MLT) at the Experimental Research Farm, Karaikal during 1998-99. It was proposed for adaptive research trial (ART) / on farm trial (OFT) in the years 1996-99 and large scale demonstrations (LSD) in the year 1998-99 in Pondicherry and Karaikal regions.

In the national trials, conducted under the All India Co-ordinated Rice Improvement Programme (AICRIP), the culture was tested as IET 14728 in the

Initial Variety trial - Irrigated medium during kharif, 1995.

Results and Discussion

P 2412 rice culture was tested under yield trials from 1993 to 1998 at the Perunthalaivar Kamaraj Krishi Vigyan Kendra, Pondicherry. It was tested in comparison with ADT 38, ADT 39, PY 4, Co 43 and I White Ponni as standards. The culture recorded an average yield of 5852 kg ha⁻¹ as against 5325 kg by ADT 38, 5076 kg by ADT 39, 5607 kg by PY 4, 5023 kg by Co43 and 5135 kg by I White Ponni and registering 10 per cent, 15 per cent, 4 per cent, 17 per cent and 14 per cent increased yield over the check varieties respectively. In the MLT, it has yielded 5258 kg ha⁻¹ with an increased percentage of 20 and 17 over Co 43 and I White Ponni checks respectively (Table 1).

The ART/OFT were conducted in comparison with PY4, Co 43, and I White Ponni as standards. It has recorded a grain yield of 5570 kg ha⁻¹ with an increased percentage of 16, 24 and 21 over PY4, Co 43 and I White Ponni respectively. In the LSD, the culture was tested with I White Ponni as check and it recorded a maximum yield of 5455 kg ha⁻¹ as against 4385 kg ha⁻¹ with and increased percentage of 24 over I White Ponni (Table 1). In the national trails (AICRIP) conducted during Kharif 1995, PY 6 (IET 14728) registered a mean yield of 4358 kg ha⁻¹ with 1 per cent increased yield over national check Jaya.

An analysis of the overall mean performance of P 2412 in station trials, MLT, ART/OFT and LSD showed that the culture recorded 5534 kg ha⁻¹ with

Table 1. Overall yield performance of P 2412

Trial	Trials	P2412	ADT 38	ADT 39	PY 4	Co 43	I White Ponni
Station Trials	7	5852	5325	5076	5607	5023	5135
Multilocation Trials	1	5258	-	-	-	4392	4479
Adaptive Research Trials/ on Farm Trials	62	5570	-	-	4812	4501	4611
Large Scale Demonstrations	4	5455	-	-	-	-	4385
Mean grain yield kg (ha ⁻¹)	-	5534	5325	5076	5210	4639	4653
Duration (days)	-	138	134	127	138	138	138

Table 2. Manurial and spacing trials in P 2412 at the station

Nitrogen level (kg ha ⁻¹)	Spacing				Mean
	20x20 cm	20x10 cm	15x15 cm	15x10 cm	
71	4392	4380	4324	4267	4341
100	5135	5561	5247	4932	5219
125	5016	5392	5085	5177	5168
150	4479	5419	4852	4972	-
Mean	4756	5188	4948	4807	-

an increased percentage of 4,9,6,19 and 19 over ADT 38, ADT 39, PY 4, Co 43 and I White Ponni respectively (Table 1).

P 2412 was compared under different levels of nitrogen *viz.*, 75, 100, 125 and 150 kg ha⁻¹ with different spacing *viz.*, 20x20, 20x10, 15x15 and 15x10 cm. The results showed that 100 kg N ha⁻¹ was the economical dose and 20x10 cm was the ideal spacing (Table 2).

PY 6 is moderately resistant to blast disease and insect gall midge. It is medium to tall in stature (120 cm) with compact panicle and medium slender white rice. It matures in 135 to 140 days. This culture was tested for various tests *viz.*, milling, polishing, chemical analysis, cooking quality and palatability (Table 3).

It can be sown in September and is suitable for growing during Samba in Pondicherry region and Thaladi in Karaikal region. It is a best alternative to I White Ponni.

Description of variety PY 6

Plant height	: 120 cm
Duration	: 135 - 140 days
50% flowering	: 105-110 days
Leaf sheath	: Green
Auricle	: Colourless
Ligule	: Colourless
Leaf blade	: Green
Flag leaf	: Erect
Fertile glumes	: Green at contigence and dirty furrow at maturity
Apiculus	: Green
Awn	: Absent
Panicle	: Compact
Exsertion	: Well exserted
Rough rice LxBxT(mm)	: 7.6x2.5x1.7
Brown rice LxBxT(mm)	: 5.73x2.02x1.40
L/B ratio	: 2.83
Grain type	: Medium slender
Abdominal white	: Absent
1000 grain weight	: 17.295 g

Table 3. Physical, chemical, cooking and organoleptic testing of P2412

Characteristics	
Milling characters (Estimated from 100 g rough rice)	
Yield of brown rice	78.19 g
Hulling per cent	78.19%
Yield of polished rice	64.04 g
Milling per cent	64.04%
Yield of head rice	42.49 g
Chemical characters	
Amylose content	28.5%
Alkali disintegration value	2
Cooking characters	
Weight increase	30 g
Volume increase	35 ml
Time taken for cooking	28 mts
Water absorption	32 ml
Leaching loss	4.5 Bx
Length of cooked rice	9.8 mm
Breadth of cooked rice	2.6 mm
Linear elongation ratio	1.71
Breadthwise expansion ratio	1.29
Organoleptic characters	
Appearance	Creamish white
Cohisiveness	Partially separated
Tenderness on touching	Moderately hard
Tenderness on chewing	Moderately soft
Taste	Desirable
Aroma	Mild
Elongation	Good
Overall acceptability	Good
Source	<ol style="list-style-type: none"> 1. Professor and Head, Dept. of Food Science and Nutrition, Agricultural College and Research Institute, Madurai 2. Project Director, Directorate of Rice Research, Hyderabad 3. Director, Tamil Nadu Rice Research Institute, Aduthurai.

Distinguishable morphological traits

1. Compact panicle with medium slender grains

2. Fertile glumes green at contigence and dirty furrow at maturity.

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