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SHORT COMMUNICATION

Identification of Unique Type of Decorticated Grain Colour in Rice Designated as "Potato Green Colour"

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The decorticated grain colour of rice has been classified into different categories as per the DUS testing guidelines as white, light brown, variegated brown, dark brown light red, red, variegated purple, purple and dark purple. We report here a completely new descriptor state based on characterization of 3806 rice germplasm lines. Accession IC464435 was identified with a unique decorticated grain of potato green colour.

Key Words: Characterization, Decorticated grain colour, Rice accession, Unique trait

Three thousand eight hundred and six genebank accessions received form NBPGR, New Delhi under ICAR Network project entitled "Consortium research platform on agrobiodiversity on germplasm characterization and evaluation" were characterized for different agro-morphological traits as per the DUS testing guidelines of rice. The experiment was conducted during *Kharif* 2019 at Research cum Instructional farm, Indira Gandhi Krishi Vishwavidyalaya (IGKV), Raipur, Chhattisgarh.

Presently as per the DUS test guidelines decorticate grain colour is classified into nine different categories as white, light brown, variegated brown, dark brown, light red, red, variegated purple, purple and dark purple. The accession IC464435 was identified with black hull (Fig. 1A) unique decorticated grain colour similar to that of potato (tuber) when it comes above the earth surface and exposed to the sunlight. Hence identified seed coat colour in accession IC464435 is proposed to be considered with a new nomenclature "Potato green colour" (Fig. 1B). IC464435 may be used as the reference genotype for the proposed state, since the expression was stable across seasons. The detail of characters of IC464435 are given in Table 1.

The length of the panicle of IC464435 was categorized as long (29.73 cm.) if panicle length is found 26-30 cm. it is classified as long with the curvature of main axis as semi erect. Panicle angle is considered to be one of the most important agronomic traits in designing 'new plant type' of high-yielding rice varieties. Semi erect panicle also utilize solar energy effectively, accelerate CO_2 diffusion, and have improved ecological growing conditions in the middle and lower part of the rice canopy (Li *et al*., 2009). The plant produced number of effective tillers was categorized as few (mean 9.67) and well exerted panicles in the field. The colour of sterile lemma was Purple (Fig. 1C) and was noted at ripening stage.

The grain length of IC464435 was noted short (6.1-8.5 mm.) in size 7.6 mm (Fig. 1D) and grain width 2.3 mm. Decorticated grain length and breadth 5.7 & 2.0 mm respectively with the grain length breadth ratio was 3.30 mm and noted awnless. In general farmer prefers awnless grain (Pachauri *et al*., 2017) in rice germplasm. The weight of 1000 fully developed grains of IC464435 with (Fig. 1A) black hull colour was 16.70 g. Accession IC464435 classified for decorticated grain size and shape based on the rice length and length breadth ratio. Accessions IC464435 classified as short as well as medium shape.

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Table 1.1 DUS Characteristics of IC464435 rice accession

S. No.	Characters	Colour/Pattern	Score	Stage of recording
1	Coleoptile colour	Purple	3	Germination
2	Early plant vigour	Good	2	Seedling
3	Seedling height (cm.)	13.17		Seedling
4	Basal leaf sheath colour	Purple lines	3	Booting
5	leaf blade colour	Green	1	Booting
6	leaf pubescence	Medium	3	Vegetative
7	Auricle colour	Colourless	1	Booting
8	Ligule shape	Split	3	Booting
9	Days to 50% flowering (days)	97		Reproductive
10	Stigma colour	Light Purple	4	Reproductive
11	Panicle exertion	Well exerted	7	Ripening
12	Panicle attitude of branches	Erect to Semi erect	3	Ripening to maturity
13	Flag leaf angle	Semi erect	3	Heading
14	Awning	Absent	9	Ripening to maturity
15	Leaf senescence	Medium	5	Maturity
16	Days to maturity (days)	122	Medium	Maturity
17	Leaf length (cm.)	64.97	Long	Vegetative
18	Leaf width (cm.)	1.1cm.	Medium	Vegetative
19	Plant height (cm.)	161.67cm.	Very long	Reproductive
20	Panicle length (cm.)	29.73	Long	Reproductive
21	Numbers of effective tillers	9.67	Few	Reproductive
22	Lemma and Palea colour	Black	9	Maturity
23	Decorticated grain: colour	Potato green colour	Add to describe	Matured seed dehusked
24	Sterile lemma colour	Purple	4	Maturity
25	Spikelet : colour tip of lemma	Purple	5	Milk stage to ripening
26	Grain length (mm)	7.6	Short	Matured seed
27	Grain width (mm)	2.3	Narrow	Matured seed
28	Grain L/B Ratio	3.30		Matured seed
29	Decorticated grain: length (mm)	5.7	Short	Matured seed dehusked
30	Decorticated grain: width (mm)	2.0	Medium	Matured seed dehusked
31	1000 gr. wt	16.70 g.	Low	Matured seed
32	Grain yield per pl. (g.)	23g.		Single plant harvested, threshed and weight
33	Threshability	Easy	1	Maturity
34	Aroma	Absent	0	Matured seed dehusked and aroma

Fig. 1. (A) Hulk colour black, (B) Decorticated grain colour - Potato green colour, (C) Sterile lemma and Spikelet tip of lemma-Purple, and (D) Grain length IC: 464435

agro biodiversity on germplasm characterization and evaluation" project.

References

AK Pachauri, AK Sarawgi, S Bhandarkar and GC Ojha (2017) Genetic variability and association study for yield contributing traits of promising core rice germplasm accessions (*Oryza sativa* L.) *Res. on Crops* **18(1):** 133-138

AK Sarawgi, GC Ojha, N Koshta and AK Pachauri (2015) Genetic divergence and association study for grain yield in rice (*Oryza sativa* L.) germplasm accessions. *The Ecoscan* **9:** 217-23 (Supplement on Rice).

Li R, YJL Stroud, JF Ma, SP McGrath and FJ Zhao (2009) Mitigation of arsenic accumulation in rice with water management and silicon fertilization. *Envir. Sci. & Tech.,* **43:** 3778-3783.