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RESEARCH ARTICLE

Study on various qualitative and quality parameters for distinctness, uniformity and stability test in rice

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SUMMARY

Seventy six rice genotypes collected from five NARS along with eight local checks from IGKV, Raipur were evaluated for 16 qulitative traits and 12 quality parameters during wet season, 2007. A large number of variations were observed for the visual characters studied. Among the sixteen quantitative traits *viz.,* purple line colour of basal leaf sheath, semi-erect angle flag leaf, intermediate leaf pubescence, 2-cleft ligule shape, green internodes, white apiculus, white colour of stigma and straw hull colour were noticed to have higher percentage of entries. Aroma was present in 40.47 per cent of the entries; for quality parameters *viz.,* paddy length, paddy L:B ratio, length of brown rice, L:B ratio of brown rice, kernel length, kernel L:B ratio, hulling per cent, milling per cent, head rice recovery per cent, kernel length after cooking kernel breadth after cooking and elongation ratio. Finally, data were subjected to statistical and biometrical analysis namely genetic variability, heritability and genetic advance.

Key Words : Quantitative traits, Quality parameters, Genotypes, Characterization, Evaluation, Pigmentation

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Distinctness, uniformity and stability (DUS) test being an internationally recognized procedure is standardized mainly for plant variety protection (PVP). It is considered a prerequisite for seed certification. It identifies and compares a variety on its description. The varieties expected to undergo certification in India should be distinct from the existing varieties under certification for its characteristics. DUS test means distinctness: new varieties should be clearly distinguishable from any other existing varieties; uniformity: individual plants of new variety should be sufficiently uniform at the same propagation stages; stability: characteristics of new variety should be stable through repeated propagation. The Seed and Seedlings Act provides the plant variety registration system for protection of plant breeders rights to promote breeding new varieties.

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The International Union for the Protection of New Varieties of Plants (UPOV), an international organization aiming to protect new plant varieties, and operates its plant variety protection system in harmonization with other member states. UPOV guidelines list "distinctness, uniformity and stability" as conditions for granting of plant breeder's rights. In 2004, participants to the UPOV-INGER (International Network for Genetic Evaluation of Rice) workshop on the "Protection of Plant Breeder's Rights" decided to establish regional rice example varieties for distinctness, uniformity and stability (DUS) test, initially, in the irrigated ecosystem for South-east, South Asia and Southern China. Example varieties are needed to harmonize states of expression for characteristics which are influenced by the environment particularly for asterisked characteristics. In DUS test, candidate varieties are cultivated on farms or in greenhouses and compared with similar existing varieties (reference varieties) for morphological evaluation of characteristics (colour, shape, and size) and physiological characteristics (tolerance to pests, diseases, particular components).

In recent years the study of natural variation has acquired another dimension in term of global trade under WTO regime. It relates to identifying useful biological variation,