

EVALUATION OF PROMISING RED PERICARP RICE (*Oryza sativa* L.) GENOTYPES SUITABLE FOR NORTHERN REGION USING CLUSTER ANALYSIS APPROACH

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ABSTRACT

Rice (*Oryza sativa* L.) is a staple food for over half of the world's population and it is cultivated across most of the districts in Sri Lanka. Red pericarp rice is noteworthy for its higher nutritional and medicinal value and distinct colour and its highly preferred in the Northern region. However, cultivated fields often lack uniformity due to mixtures. This study aimed to identify the best-performing red pericarp rice genotypes due to popularity in this region for red pericarp rice by evaluating 49 lines, including a local check variety, At 362. The seedlings were planted with a spacing of 15 cm* 30 cm, and observations were recorded from 1,470 plants across three replications. Cluster analysis included plant height and tiller number at booting stage, chlorophyll content, flag leaf area, panicle length, and 1000 seeds weight, total number of filled grains per panicle and plant, grain yield and per day productivity. Among tested genotypes 13 did not flower due to its photosensitivity during *yala* season. Five clusters were formed, with significant differences observed among them. *viz.* Cluster 1, cluster 2, cluster 3, cluster 4 and cluster 5 had genotypes of 08, 15, 10, 02 and 01 respectively. This grouping was supported with a dendrogram. Grain yield, maturity days and per day productivity were considered for selecting potential genotypes for Northern region. Genotypes E17 (IC/OZ/UDL/RP/2418), E20 (IC/OZ/UDL/RP/2421), E49 (Ld 368), and E15 (IC/OZ/UDL/RP/2416) showed the highest yields and per day productivity. E20 exhibited lodging. Overall, E17, E49, and E15, along with At 362, were identified as suitable for the Northern region. There selected genotypes would be further tested in replicated trials at several locations under farmer field conditions for conformity with the standard variety At 362.

Keywords: *Genotypes, Northern region, Per day productivity, Red pericarp rice, Yield*

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