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Analysis of selected rice varieties in Sri Lanka by randomly amplified polymorphic DNA (RAPD)

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Rice is a major food crop in Sri Lanka. Rice as the staple food constitutes the single most important crop occupying nearly 29% of the total agricultural land in Sri Lanka, and about 1.8 million farm families are engaged in rice cultivation. Molecular characterization of germplasm diversity and genetic relationships among breeding materials could be an invaluable aid in crop improvement strategies. Locally developed, mutant, and traditional rice varieties were used in this study. Rice seeds of twenty five traditional and improved rice varieties were collected from regional rice research and development center in Bombuwala and rice research station in Ambalantota. DNA was extracted by using modified CTAB method. Extracted DNA was amplified by using RAPD markers, OPI6, OPJ4, OPO19 and OPE14. The presence of a particular band was denoted as one and absence as zero. Then data were analyzed using cluster analysis of SPSS 16.0. Then the clusters were represented in the form of a dendogram. Two major clusters except mu-1-2 mutant variety were observed. It may be an economically important mutation and this dendogram provides information useful for selecting parents in the development of intercluster crossing programs.

Key words: RAPD (randomly amplified polymorphic DNA), DNA (deoxyribose nucleic acid), CTAB, (cetyltrimethyl ammonium bromide)