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Multiple origin of weedy rice (*Oryza sativa f. spontanea*) in Sri Lanka

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The origin of weedy rice has long been a controversial issue and opinions on the origin of WR are greatly varied across the scientific community. As far as Sri Lankan WR ecotypes are concerned, a geographical pattern of distribution which associated with the wild rice and cultivated rice varieties in each climatic zone. Genetic diversity of 85 weedy rice eco-types, 60 cultivated rice varieties and 2 wild relatives distributed in wet, intermediate, dry zone were studied using 10 microsatellite (SSR) markers distributed across the rice genome. Total genomic DNA was extracted from 7-day old seedlings of respective WR eco-types, wild rice and cultivated types. A total of 10 SSR primer pairs were used for molecular study. Fragment analysis using capillary electrophoresis was performed and identified different peaks among WR eco-types and wild rice varieties. Obtained data were subjected to cluster (CA), principle component (PCA) and self-organizing map. Results of the PCA and CA indicated that SSR distribution across the weedy rice eco-types, cultivated rice varieties and wild relatives provide strong evidences supporting the hypothesis that the wild relative *O. rufipogon* and *O. nivara* ecologically diversified into wet and dry habitats, respectively. Thus, origins of the weedy rice eco-types are results of the spontaneous hybridization and out-crossing between wild relatives and cultivated rice varieties. Further, SOM imply that four out of 10 SSR primers (RM 211, RM 280, RM 14 and RM 44) are important in separation of different WR eco-types satisfactorily with minimum labor, time and cost.

Biography

S R Weerakoon has completed her PhD and Post-doctoral studies from the University of Western Australia. She works as a Professor in Botany at the Open University of Sri Lanka. She has published more than 25 journal papers and more than 80 papers in conference proceedings and currently, involved in research activities in the areas of Plant Breeding and Weed Biology.

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