

MORPHOLOGICAL DIVERSITY OF WILD RICE AND CROSS COMPATIBILITY BETWEEN WILD RICE AND SELECTED ELITE RICE VARIETIES

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The elite rice (*Oryza sativa* L.) varieties grown in Sri Lanka are unable to achieve optimal yield as they lack tolerance to abiotic and biotic stresses. This research evaluated the morphological diversity of wild rice and the cross compatibility between wild rice species and selected elite rice varieties for rice crop improvement by identifying compatibility for transferring important traits from wild rice species. Five elite rice varieties namely; Bw 367, Bg 374, Bg 366, Bg 352, and At 362 were crossed with four wild rice species namely; *Oryza nivara*, *Oryza eichingeri*, *Oryza rhizomatis*, and *Oryza granulata* grown in plant house of Plant Genetic Resource Centre, Gannoruwa. Elite rice varieties were emasculated by hot water treatment and were hand pollinated with the pollen of wild rice species. The success of crossing was determined by the percentage of filled and unfilled spikelets per panicle. The morphological diversity of wild rice species was assessed on 29 qualitative and quantitative characters by using cluster analysis in Minitab statistical software. According to the results, rice varieties Bg 366, Bg 352, Bg 374 and Bw 367 were compatible with *Oryza nivara*. Variety At 362 was compatible with *Oryza eichingeri* while Bg 366 and Bg 352 were compatible with *Oryza rhizomatis*. Morphological characterization resulted in seven groups of wild rice species, which can be used for confirmation of species and for breeding programmes in future. Present study proved the possibility of inter-specific hybridization of wild rice species with *Oryza sativa* in rice crop improvement. However, evaluation of biotic and abiotic stress tolerance of resulted progenies are suggested for further confirmation and future utilization of them in plant breeding programmes.

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