

Evaluating Genetic Resources of an Endemic Wild Rice Species, *Oryza rhizomatis* Vaughan

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Oryza rhizomatis (Vaughan) is an endemic wild relative of cultivated rice reported only from some isolated habitats in Sri Lanka. It is a perennial species with a clear rhizome and a thick root system. While genetic resources of some wild *Oryza* are incorporated in breeding programs, no such reports are available on *O. rhizomatis*. Characterization of existing germplasm is the primary step in such efforts. This study report morphological and molecular characterizations of existing *O. rhizomatis* germplasm, their drought tolerance and brown plant hopper (BPH) resistance. Fourteen *O. rhizomatis* accessions collected from an Island-wide survey were maintained under the controlled environmental conditions and assessed using 31 morphological characters including floral traits and yield parameters. Interestingly, the existing germplasm is morphologically diverse and even some samples collected from the nearby locations were considerably different from each other. Morphological differences could differentiate the *O. rhizomatis* accessions collected from North Western, North Central and Yala National Park of Sri Lanka. The same germplasm was assessed with twenty Simple Sequence Repeat (SSR) primer sets and polymorphic Inter Simple Sequence Repeat (ISSR) regions to assess genetic diversity. A pot experiment was carried out to test drought tolerance, by giving drought stress at the panicle initiation stage of the plant. Interestingly, the drought tolerance ability of the germplasm varied and three accessions collected from Puttalam district (two from *DL1b* and one from *DL1f* zone) were more drought tolerant than the others. The honeydew test was performed against BPH and all the accessions were resistant to BPH attack compared to the currently used resistant check variety, Ptb 33. These findings suggest possibility of utilizing *O. rhizomatis* genetic resources for defeating water scarcity and BPH damage in rice cultivation.

Key words: Brown plant hopper (BPH), Drought tolerance, Genetic Characterization, *Oryza*, Wild rice