



3rd Global Conference on Entomology (GCE-3)

August 22-24, 2016, Colombo, Sri Lanka

Organized by:



University of Sri Jayewardenepura

070 Characterization of “Suwandal” rice accessions of Sri Lanka using molecular and morphological markers

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Rice (*Oryza sativa* L.) is central to the lives of billions of people around the world. Rice is rich in genetic diversity, with thousands of varieties grown throughout the world and a very little genetic diversity of those crop plants has been used for the development of agriculture. Knowledge and assessment of the genetic diversity of germplasm collections is an important foundation for germplasm management processes and for crop improvement. This study was conducted to assess the genetic diversity and to identify duplicates among 14 Suwandal rice accessions, which are conserved at the seed gene bank of Plant Genetic Resources Centre (PGRC), Gannoruwa, Sri Lanka. Accessions were established in the experimental field at PGRC during ‘Yala’ season, 2015. Morphological characters were scored according to the standard descriptors for Rice. Molecular assessment was done using 11 microsatellite markers and resolved by polyacrylamide gel electrophoresis. Statistical analysis was done for morphological and molecular data using MINITAB and POWERMARKER softwares respectively. Results revealed that there is considerable amount of genetic diversity among tested accessions in both morphological and molecular levels. High variation among the accessions was observed in plant height, maturity, grain width and grain length, ligule length, panicle threshability, panicle length, culm strength, culm diameter, 100 grain weight, days to heading, sterile lemma length and in lemma and paleacolor. Analysis based on morphological markers revealed that the most distantly related accession as Ac # 12844 and the most closely related accessions as Ac # 13300 and AC # 11340, Ac # 10729 and Ac # 04471. Analysis based on molecular markers revealed the highest genetic distance in between Ac # 04197, Ac # 10646 and in between Ac # 12827 and Ac # 04595. The most closely related accessions were recorded as Ac # 13300 and AC # 11340 and according to the Nei’s (1983) distance matrix duplicates were not identified with 100% similarity.

Key words: *Oryza sativa*, genetic diversity, germplasm, Suwandal, microsatellite