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Preliminary evidence of Bermuda grass white leaf (BGWL) phytoplasma associated with rice yellow dwarf disease (RYD) in Sri Lanka

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Phytoplasmas are cell-wall-less bacteria and known to cause disease in hundreds of plant species worldwide. Phytoplasma diseases have significant impact on yields of many important crops including rice (*Oryza sativa*). Rice yellow dwarf disease (RYD) continues to be a problem for rice farmers in many regions of Asia. Infected rice turns pale yellow and gradually starts to decay and ultimately shows stunted growth and fails to produce grain. RYD phytoplasma has been classified in RYD 16S-group XI and its closest known relatives are the phytoplasmas associated with sugarcane white leaf (SCWL), and sugarcane grassy shoot (SCGS) found in sugarcane. In addition to RYD phytoplasma, several phytoplasmas infect gramineous plants, including rice orange leaf (ROL), Bermuda grass white leaf (BGWL), and *Brachiaria* grass white leaf (BraWL) phytoplasmas. In Sri Lanka, yellowing and stunting of rice plants similar to the RYD has been reported and the causal agent is not identified. Symptoms similar to RYD rice plants were collected from Monaragala and Weligama areas and positive for phytoplasma when subjected to nested PCR with phytoplasma universal primers. The amplicons were sequenced and BLAST search showed that the sequences had >98% similarity with Bermuda grass white leaf (BGWL) group (16SrXIV). Phylogenetic analysis based on 16S rRNA gene revealed the clustering with BGWL groups. Further research is being carried out in order to consolidate this finding with more samples and additional genes such as *secA* for better resolution of phytoplasma grouping.

Key words: Phytoplasma, Rice, SCWL, BGWL, RYD

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