

BERMUDA GRASS WHITE LEAF CAUSED BY PHYTOPLASMAS IN PAKISTAN

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Bermuda grass (*Cynodon dactylon* (L.) Pers.) is widely distributed in Pakistan. The lawn grass at the Plant Genetic Resources Institute (PGRI) at National Agricultural Research Centre (NARC), Islamabad showed white leaf symptoms of chlorosis and adventitious branching in patches which some people related to nutritional deficiency. To identify the causal organism the diseased and apparently healthy leaves were collected and to determine the involvement of Phytoplasmas DNA was extracted from the leaves using technique as described by Nakashima *et al.*, (1991). The extracted DNA was sent to Japan International Research Centre for Agricultural Sciences (JIRCAS) for the assay based on Polymerase Chain Reaction (PCR) amplification. The DNA of clean Bermuda grass grown in Japan and that of white leaf infected grass from Thailand, were included in the assay as references. The DNA assay was carried out using the primer (universal set) developed by Namba *et al.*, (1993) which amplifies a segment of 16S rRNA gene specific to Mollecutes.

The results of electrophoresis of PCR amplification of products in 0.7% agarose gel after staining with ethidium bromide are presented in Fig.1. The assay showed that the diseased Bermuda grass in Pakistan harbor DNA characterizing Mollecutes indicating the presence of Phytoplasmas. Apparently healthy plants collected from Pakistan also showed a weaker but significant reaction to the assay suggesting that the lawns in Pakistan are widely infected by Phytoplasmas. Molecular weight of PCR bands of the pathogen from Pakistan was comparable to that of Thailand specimens.

Based on DNA analysis this is the first report on Phytoplasmas as a causal agent of plant diseases in Pakistan. There is need for elucidating wider spectra of Phytoplasmas for other crops as well.

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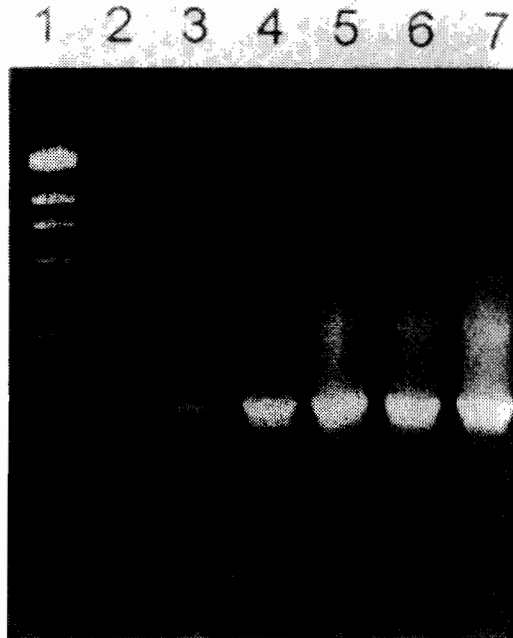


Fig. 1. PCR amplification of a 1.4 kb 16S ribosomal DNA sequence of phytoplasmas from plants.

Lane 1 = *Hind* III-digested lambda phage DNA.

Lane 2 = DNA templates for PCR derived from healthy Bermuda grass plants in Japan.

Lane 3 = Symptomless Bermuda grass plants in Pakistan.

Lane 4 = Bermuda grass plants with white leaf symptoms in Pakistan.

Lane 5 = Bermuda grass plants with white leaf symptoms in Thailand.

Lane 6 = Sugarcane plants with white leaf disease in Thailand.

Lane 7 = Rice plants with yellow dwarf disease in Japan.

References

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