New Disease Reports

First report of a phytoplasma associated with Bermuda grass white leaf disease in Kenya

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Bermuda grass (=Star grass), *Cynodon dactylon*, is a perennial plant of the family Poaceae that is native to the African Savannah but is now widely distributed over many warm countries of the world (Marcone *et al*., 1997). *C. dactylon* plants were observed at five locations in Mbita and two locations in Bungoma areas of western Kenya showing symptoms similar to Bermuda grass white leaf (BGWL) disease, caused by a phytoplasma (Marcone *et al*., 1997). Affected grasses exhibited whitening of leaves, bushy growing habit, small leaves, shortened stolons/rhizomes, stunting, proliferation of auxiliary shoots and death (Fig. 1). Phytoplasma aetiology being suspected, leaf samples of six symptom-bearing and six symptomless plants were taken from each location at Mbita and Bungoma. Total DNA was extracted from the collected leaves using the hot cetyltrimethylammonium bromide (CTAB) method of Doyle & Doyle (1990), and used as template in a nested polymerase chain reaction (nPCR) assay with 16S rDNA universal primers P1/P6 (Deng & Hiruki, 1991) and R16F2n/R16R2 (Gundersen & Lee, 1996). Phytoplasma infection was confirmed by the amplification of a 1200 bp 16S rDNA nPCR fragment from all symptom-bearing *C. dactylon* plants tested (6/6, Fig. 2). No amplification was recorded in the symptomless plants. The 1200 bp amplicons were gel purified (QuickClean Gel Extraction Kit, Genescript), and directly sequenced (Segolilab, ILRI, Nairobi). The partial 16S rDNA sequence of the BGWL phytoplasma was submitted to GenBank (Accession No. GU944766).

The BGWL phytoplasma 16S rDNA sequence exhibited 100% of identity with that of '*Candidatus* Phytoplasma cynodontis' strain LY-C1 (EU409293), which belongs to the BGWL group (16SrXIV), and 99% of sequence identity with other BGWL phytoplasma members. BGWL disease was first reported in Taiwan, and is known to occur in several Asian countries, Sudan, Italy, and Cuba (Arocha & Jones, 2010). To our knowledge, this is the first report of the BGWL disease and its associated phytoplasma in Kenya. The disease is significant since *C. dactylon* is widely used for forage and turf in the region. As the disease progresses, rangeland productivity is bound to decline. This will compromise the provision of pasture for livestock and wildlife. BGWL disease will also affect turf production and will dramatically reduce the role of turf in preventing soil erosion.

Acknowledgements

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Figure 1

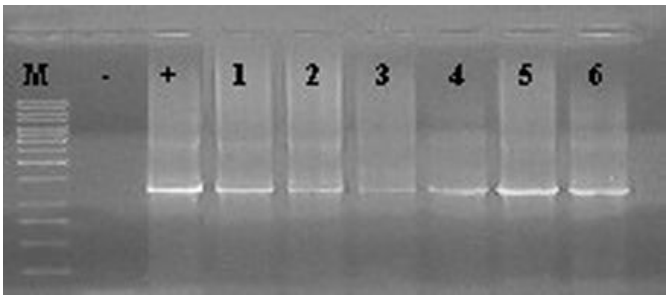

Figure 2

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