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Revealing a geographical distribution of several strains of Coconut Lethal Yellowing phytoplasmas associated with different patterns of dispersal in Cuba.

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For the last 30 years, Coconut Lethal Yellowing (LY) was the most devastating disease of coconut palms in the Caribbean. First cases in Cuba probably occurred at the beginning of the 1900s. At this time, LY was very severe in Baracoa, the main area for copra production, (East end of the island). These last years several samples of LY affected coconuts were collected in different provinces from the East end to the West end (Pinar del Rio). After DNA extractions, PCR were run with different sets of primers: P1/P7 or LY-F/LY-R. PCR products were cloned and sequenced. Sequences were aligned and studied with different phylogeny softwares. If the 16-23 S rDNA sequences showed some local variations they are relatively conserved. But sequences obtained with the non ribosomal primers LY-F/LY-R (Harrison et al. 1994) showed three very distinct groups of LY phytoplasmas. The first one corresponded to the Baracoa region where there are large plantations and where the disease is currently slowly spreading without any foci (scattered cases). The second one was associated to a very narrow coast line between the hills of the Sierra Maestra and the ocean, where LY was very severe these last 8 years destroying almost all coconuts. The LY isolates from this region are very close to isolates from Jamaica -only 200 km South of Pilon- where unusually high LY incidence was reported from the late1980s until the 2000s. The third group covered the West part of Cuba (Pinar del Rio) a province where coconuts are not numerous and where the disease is slowly spreading. This geographical distribution of the three LY groups in Cuba may originate in differences in vector insects. Similarities between Jamaican and Pilon isolates may be explained by transportation of infectious vectors by hurricanes, frequent in this region.

Harrison et al. 1994. Plant pathology, 43:998-1008

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