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Abstract for oral presentation

Sugarcane mosaic and sorghum mosaic are caused by two different strains of *Sugarcane mosaic virus* in the Everglades Agricultural Area

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Sugarcane mosaic virus (SCMV) infects sugarcane and other species in the family *Poaceae*. In the Everglades Agricultural Area (EAA) of south Florida, we detected SCMV in Columbus grass (*Sorghum almum*), maize (*Zea mays*), sorghum (*Sorghum bicolor*), St. Augustine grass (*Stenotaphrum secundatum*), southern crabgrass (*Digitaria ciliaris*), and sugarcane (*Saccharum* spp.). The entire coat protein (CP) of 43 SCMV isolates from these six host plants was amplified by reverse-transcription polymerase chain reaction and sequenced. The size of the CP sequences ranged from 837 to 1008 nucleotides. A phylogenetic analysis was performed using the sequences obtained in this study along with the CP sequences of other SCMV isolates retrieved from GenBank. SCMV isolates causing mosaic of sugarcane formed a distinct phylogenetic group. This group was closest to a separate phylogenetic group formed by SCMV isolates from Florida causing mosaic of Columbus grass, maize, and sorghum. Maize and sorghum showed mosaic symptoms when mechanically inoculated with SCMV isolates from sugarcane and Columbus grass. SCMV was not transmitted mechanically from sugarcane to Columbus grass or from Columbus grass to sugarcane. This suggests that SCMV from sugarcane and SCMV from Columbus grass are two different strains of the virus, and that Columbus grass is not the inoculum source for SCMV infecting sugarcane in the EAA. Furthermore, close phylogenetic relationship between isolates of SCMV from Columbus grass, maize, and sorghum suggests that the same virus strain is naturally spread among these plants in south Florida.