

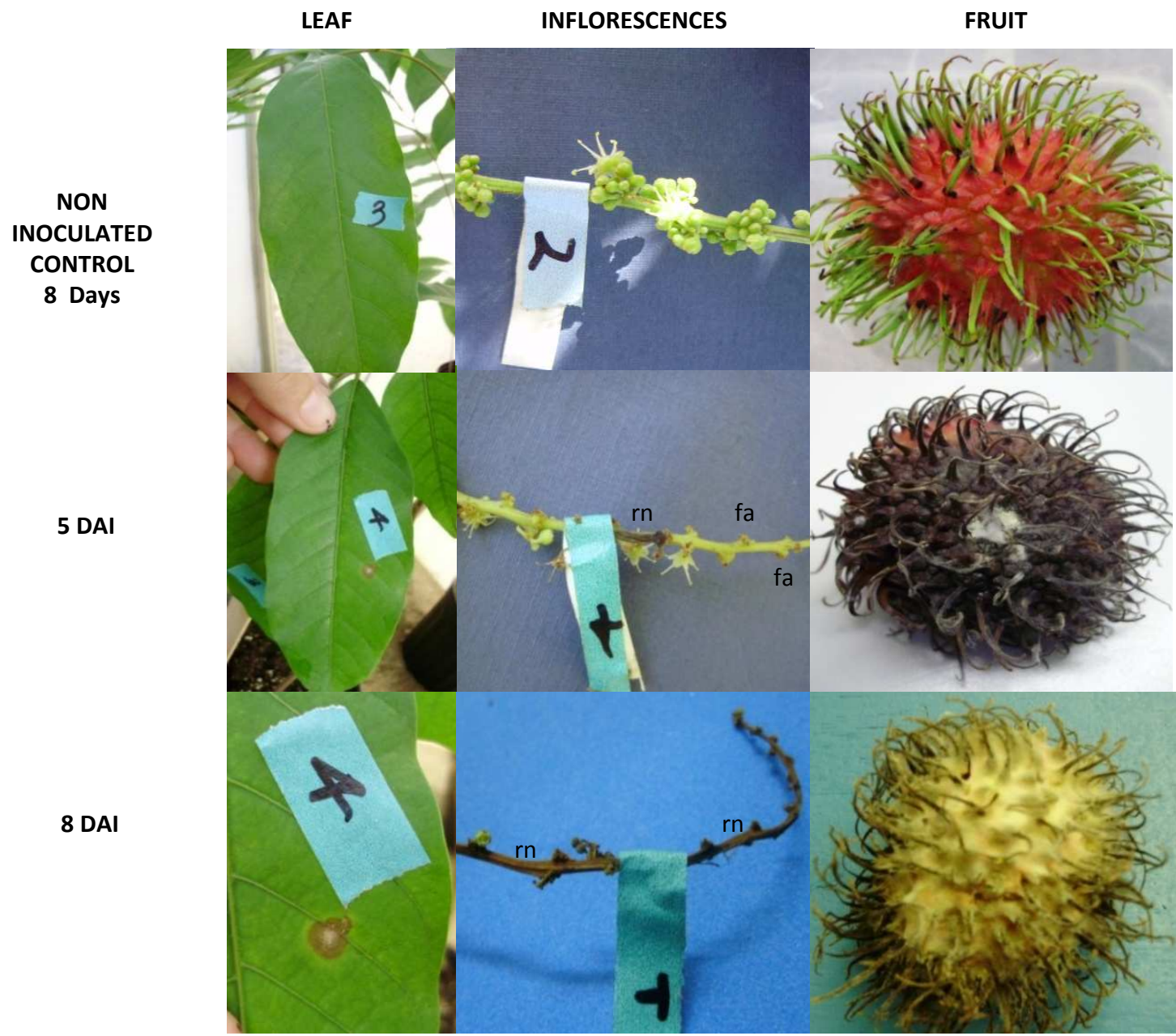
# First Report of *Lasmenia* sp. causing Rachis Necrosis, Flower Abortion, Fruit Rot and Leaf Spots on Rambutan in Puerto Rico

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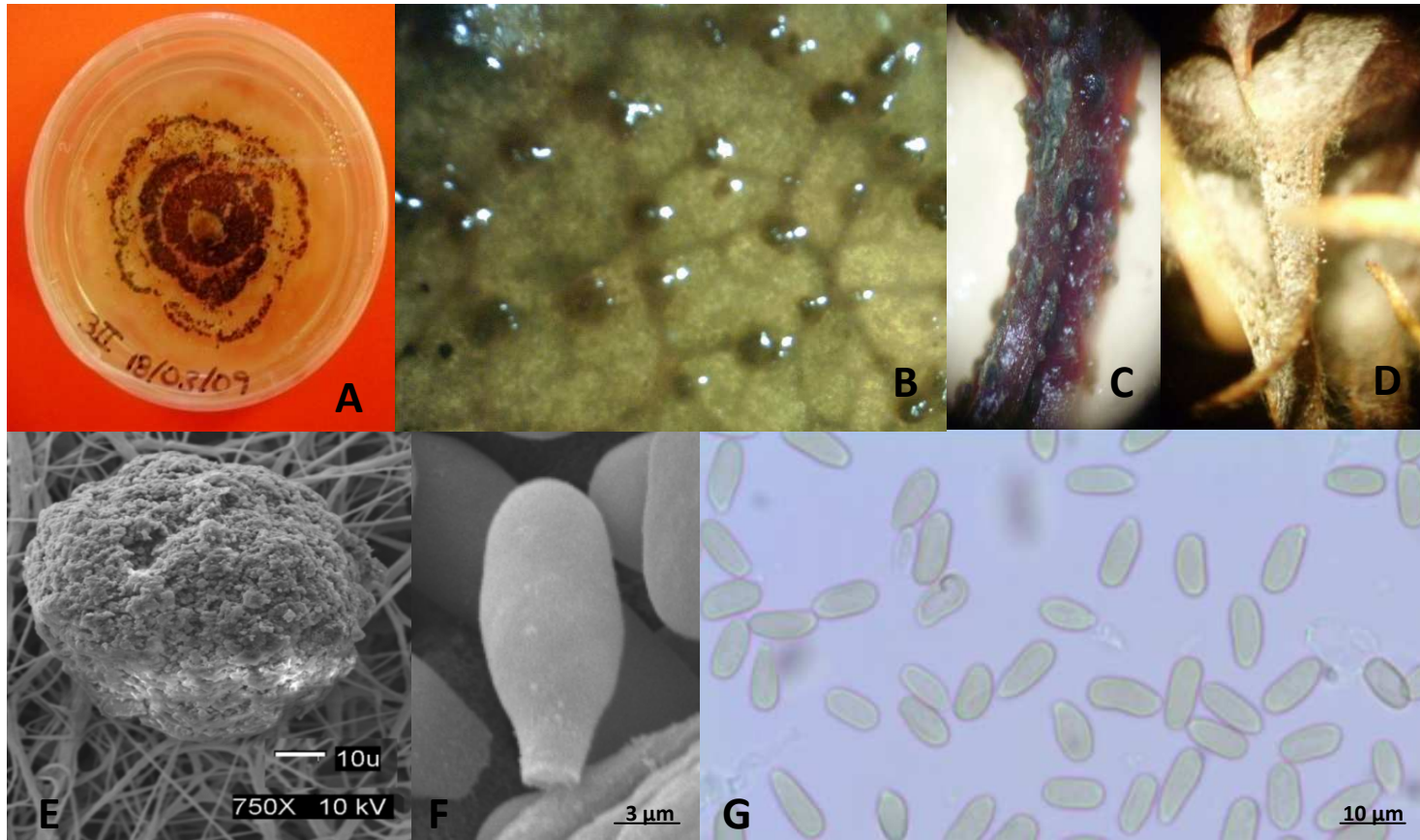
Rambutan (*Nephelium lappaceum* L.) is a tropical fruit tree that has increased in importance for fruit growers in Puerto Rico. In 2008 and 2009, fruit rot and lesions on both leaves and inflorescences were observed. A total of 276 diseased samples were collected from commercial orchards, orchards at the University of Puerto Rico and the USDA-ARS in Mayaguez. Plant tissue was disinfested and plated on acidified potato dextrose agar (APDA). Besides other typical fungi normally associated with these tissue samples (2,3), 130 unknown isolates were identified as *Lasmenia* sp. at the Fungal Biodiversity Centre (CBS), Netherlands, and the University of Puerto Rico, using taxonomic keys (1,4). Sequencing of the rDNA using primers ITS 1 and ITS 4, and Lr5 and LR0R corresponding to the ITS1-5.8S-ITS2 region and the partial region of the Large Ribosomal Subunit (LSU), respectively, was done. Five isolates (CBS 124122 to 124126) were deposited at the CBS. In APDA, colonies of *Lasmenia* sp. were cream-colored with dark brown concentric rings, and immersed, hyaline, branched and septate mycelium. Acervuli were produced on both APDA and plant tissue that was sampled from field and clean tissue that was inoculated with *Lasmenia* sp. Conidia were 10 to 12  $\mu\text{m}$  long by 4 to 5  $\mu\text{m}$  wide, light-brown, thick-walled, obclavate, aseptate and the apex was obtuse with a scar at the base. Conidiophores were hyaline, septate, cylindrical, and sparingly branched. The conidiogenous cells were hyaline, cylindrical, and holoblastic. Pathogenicity tests were done on 12 healthy, superficially sterilized fruits under laboratory conditions, on four random leaves in each of six 6-month-old rambutan seedlings under greenhouse conditions, and on four flowers in six random inflorescences for each of six mature trees from an orchard. Tests were repeated. Either wounded or unwounded tissues were inoculated with a conidial suspension ( $2$  to  $4.5 \times 10^6$  conidia/ml) and 5-mm mycelial disks from each fungal isolate grown in APDA. After five days, *Lasmenia* sp. produced necrotic spots on leaves, rachis necrosis and flower abortion, fruit rot and water-soaked lesions on the fruit surface that spread to cause an aril (flesh) rot. Acervuli were produced on fruit spintems (hair-like appendages). Koch's postulates were fulfilled by reisolation of inoculated fungi from diseased tissue. A complete sequence for the ITS region for four isolates of *Lasmenia* sp. was submitted to NCBI GenBank (Accession Nos. GU797405, GU797406, GU797407 and JF838336). Complete sequences of the LSU region for all five isolates were submitted to GenBank (Accession Nos. JF838337, JF838338, JF838339, JF838340, and JF838341). For both types of sequences, the percent identity was 100% between isolates. Although there is no DNA sequence data for the genus *Lasmenia*, a BLASTN search indicates a closer affinity to the Cryphonectriaceae (Diaporthales) (1). *Lasmenia* sp. has been reported in Hawaii causing fruit rot

in rambutan (2). To our knowledge, this is the first report of *Lasmenia* sp. causing rachis necrosis and flower abortion worldwide, and the first report of fruit rot and necrotic spots on leaves of rambutan in Puerto Rico.

*References:* (1) Kamat et al. *Revue Mycol.* 38:19, 1973. (2) K. A. Nishijima, and P. A. Follett. *Plant Dis.* 86:71, 2002. (3) L. M. Serrato et al. *Phytopathology* 100:S176, 2010. (4) B. C. Sutton. *The Coelomycetes: Fungi Imperfecti with Pycnidia Acervuli and Stromata.* Commonwealth Mycological Institute. Kew, Surrey, England, 1980.



**Figure 1.** Necrotic spot on leaves, rachis necrosis (rn) and flower abortion (fa), and rotting of the spintem (hair-like-appendages) and skin (peel) on fruits of rambutan at 5 and 8 days after inoculation (DAI) with agar disk plugs containing *Lasmenia* sp.



**Figure 2.** Characteristics of *Lasmenia* sp. isolated from Rambutan. (A) Colony growth as observed on APDA. (B) Acervuli on leaf surface. (C and D) Acervuli on spintems (hair-like-appendages) of rambutan. (E) Acervulus observed using Scanning Electron Microscopy (SEM). (F) Close-up of a conidium observed using SEM. (G) Conidia observed using light microscopy.