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The Banana Moth, *Opogona sacchari* (Bojer) (LEPIDOPTERA: TINEIDAE), in Florida[1]

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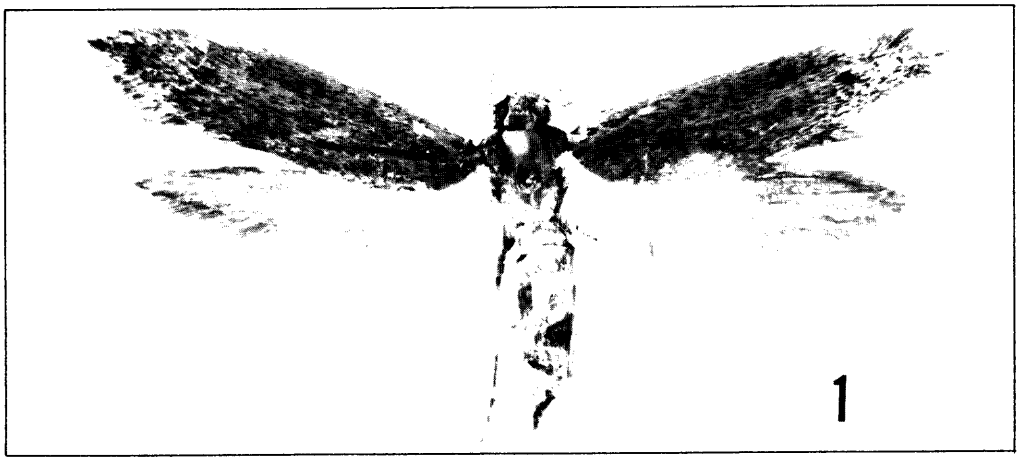

Fig. 1. - Opogona sacchari (Bojer) adult female (ca. 20mm), Florida (reared, Homestead; H. Glenn & J. E. Pena, 1986). (Photo courtesy of D. R. Davis, USNM, Washington, D.C.).

SYNONYMY: Alucita sacchari Bojer, 1856 (TL: Mauritius)
=Tinea subcervinella Walker, 1863 (TL: Mauritius)
=Gelechia sanctaehelenae Walker, 1875 (TL: St. Helena)
=Gelechia ligniferella Walker, 1875 (TL: St. Helena)
=Laverna plumipes Butler, 1876 (TL: Rodriguez Id.)

INTRODUCTION: The banana moth, Opogona sacchari (Bojer), also known as Opogona subcervinella (Walker), is known from a number of tropical areas around the world and periodically has been intercepted in Florida. In the last few years the species has become established in various nursery stocks in southern Florida, particularly in Dade and Palm Beach counties. The species is not usually a very important pest but has had localized outbreaks on bananas in the Canary Islands (Oldham, 1928), as well as on sugarcane in Mauritius and the Seychelle Islands (Durrant, 1925). The genus Opogona is primarily pantropical, encompassing over 225 species worldwide, and only a few are of any economic importance. Opogona and some related genera are now classified as Tineidae, in the subfamily Hieroxestinae. A few species occur in North America, with 3 species now known for Florida: the banana moth, O. sacchari; a native species, Opogona floridensis Davis; and another introduced species recently found in the Miami area, Opogona purpuriella Swezey.

Records from the Miami USDA Inspection Station (courtesy of E. B. Lee) indicate interceptions of O. sacchari as early as December 9, 1957, on banana stock from Cuba. Records kept by the Division of Plant Industry, FDACS, Gainesville, show Opogona identifications since May 28, 1963 (on Enterolobium sp.), with more frequent records for 1977-78 and 1985-86; these records are undoubtedly all O. sacchari (Fig. 9). Nursery stocks particularly affected recently in Florida include corn plant or cane (Dracaena fragrans 'Massangeana') and bamboo palms (Chamaedorea spp.), as well as Hawaiian good luck plant (Cordyline terminalis) and aralias (Polyscias spp.). Recent outbreaks of Opogona sacchari have been confined to nursery stock in southern Florida and to retailers in various Florida cities; the only exceptions are a few records of homeowner yard or house plants in the Dade County area. The moth appears to be so prevalent in Dade County that adults probably are flying from one nursery to another and only cooperative control measures will depress the Opogona population. Thus far, O. sacchari has not been found on nearby sugarcane or banana plants in Dade County.

DISTRIBUTION: African islands (Mauritius, Rodriguez, St. Helena and Seychelle Is.); west Africa (Nigeria); Canary Is.; Madeira Is.; Europe (nursery stock); Central America to South America; West Indies; introduced into Florida (Alam, 1984; Bojer, 1856; Durrant, 1925; Oldham, 1928; Veenenbos, 1981; Zimmerman, 1978).

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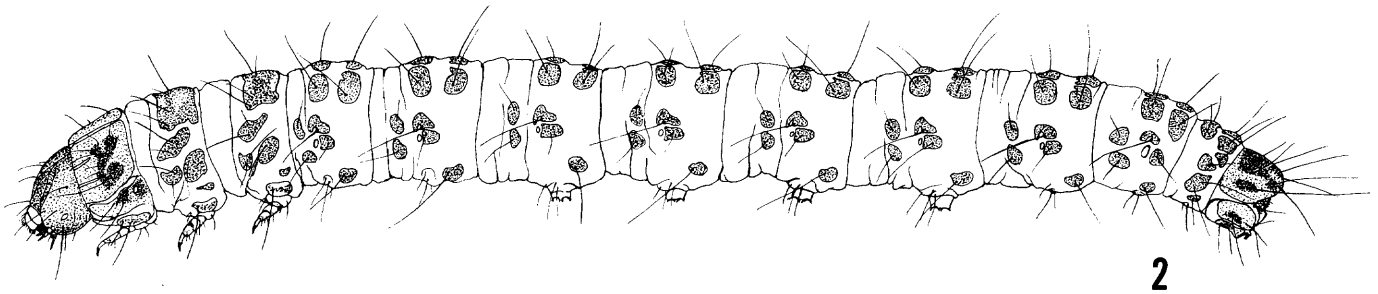

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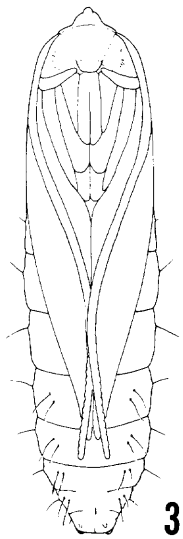

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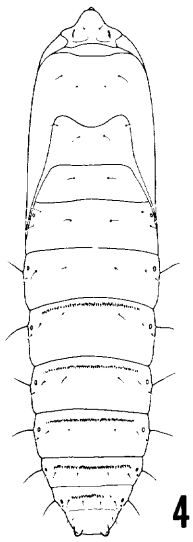

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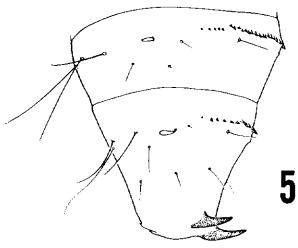

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Fig. 2-5.- Opogona immatures: 2. Last instar larva of O. sacchari (lateral view); 3. Pupa of Opogona omoscopa (Meyrick) (ventral view); 4. Pupa (dorsal view); 5. Caudal end of pupa (lateral view). (Figs. of pupa after Davis, 1978).

ADULTS: Many Opogona moths are somber colored and nearly unicolorous, like O. sacchari (Fig. 1), but a few species are brightly colored with golden markings, like O. purpuriella. Most Opogona are less than 10mm in wingspread, but O. sacchari is one of the larger species at 18-26mm wingspread. Forewings of O. sacchari are brown with a golden iridescence and 2 small black spots, one at about 1/3 from the wingbase along the cubital fold and one near the wing apex at about 1/4 from the apex. Opogona floridensis has only one prominent black spot along the dorsal wing margin, about mid-wing at the end of the cubital fold. Opogona purpuriella has a prominent golden yellow marking along the basal half of the forewing dorsal margin and 2 golden marks along the costal margin, as well as the darker ground color of the forewing and the smaller size (10-12mm).

IMMATURE STAGES: Larvae are large for Opogona, ranging from 26-32mm for last instar larvae. Larvae are distinctive in having relatively prominent thoracic and abdominal plates dark brown in color (Fig. 2). A detailed larval description is being published separately by Davis and Pena (in press). Although fully grown larvae of O. sacchari should not be confused with any other Florida Tineidae, early instars do not have such prominent dorsal plates or they are lighter in color, thus resembling Xylesthia pruniramiella Clemens, another tineid often causing damage similar in appearance to Opogona damage. Xylesthia larvae are without the dark dorsal plates and typically have many small brown setal bases over the entire body for the primary setae. Another Florida group which could be confused with Opogona larvae are the root feeding Acrolophus species of Tineidae: in these the larvae have 6 lateral stemmata (or ocelli) on the head, versus only a single stemma in Opogona. Pupae of Opogona species are distinctive in having upturned spines on the end of the abdomen (Fig.3-5).

BIOLOGY: Opogona and related tineids typically are detritus feeders and scavengers. Some species, like O. sacchari, attack damaged tissues of various plants and then also feed on nearby living tissue, thus causing more extensive damage. Typical O. sacchari damage on corn plant cuttings (Dracaena spp.) is shown in Fig. 6-7. Nursery stocks in Florida are often imported from Central America and the West Indies, and larvae of O. sacchari have been found in many cuttings. Cuttings of Dracaena spp., having Opogona larvae, will show exterior debris and frass deposits (Fig. 6), and have internal feeding damage on dead and living portions of the cortex and pith (Fig. 7). In Chamaedorea palms the larvae typically feed at the base of the plant where the aerial roots enter the soil, and frass accumulates at the plant base from feeding into roots and petioles (Fig. 8). Damage is less evident in Chamaedorea palms, and often Opogona presence is not known until damaged fronds fall over. In older palms the leaf blades of the growing point become bleached and necrotic. Pupal cases typically are extruded from the base area soil at adult emergence.

Adults are active at several times of the year in southern Florida, indicating probably continuous generations under nursery conditions. Females deposit egg masses in plant crevices. Eggs hatch in 5-6 days. Larval development requires 21-26 days. The pupal stage lasts 13-14 days, and adults typically live 5-7 days. These bionomics could allow up to 8 generations per year.

Fig. 6-8.- Opogona sacchari (Bojer) larval damage: 6. Frass deposits on cut end of Dracaena fragrans 'Massangeana'; 7. Feeding damage of cortex layer on Dracaena fragrans 'Massangeana'; 8. Feeding damage and extruded larva on Chamaedorea sp. palm base and root.

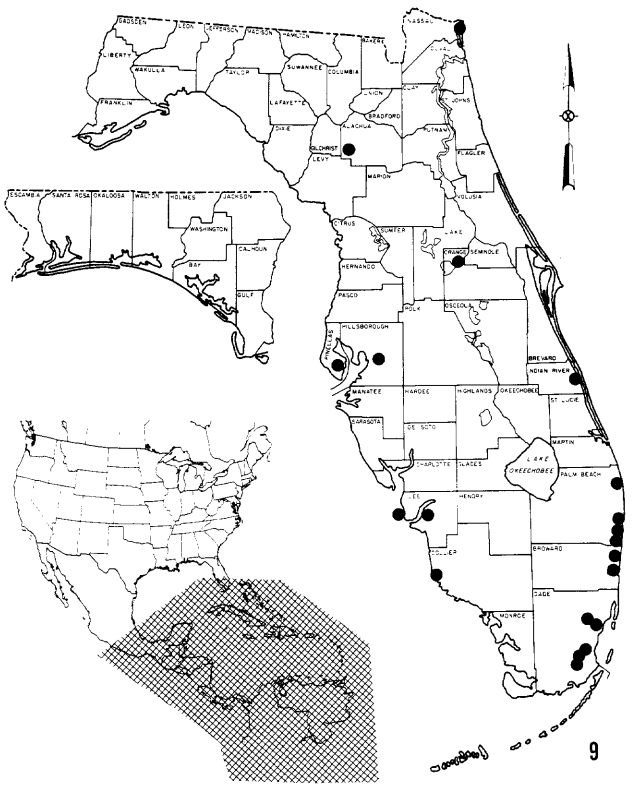

Fig. 9.- Distribution map for Opogona sacchari (Bojer) collection sites in Florida (1963-86) (all sites are in nurseries, retail outlets or from nursery stock), with presumed distribution in the neotropics (left inset).

HOSTS: Albizia julibrissin Durazz. (Leguminosae), Arecastrum sp. (Palmae), Bactris [=Guilielma] gasipaes HBK (Palmae), Chamaedorea elegans Mart., C. erumpens H. E. Moore, C. seifrizii Burret (Palmae), Clerodendrum sp. (Verbenaceae), Cordyline terminalis (L.) Kunth (Agavaceae), Cycas revoluta Thunberg (Cycadaceae), Dioscorea sp. (Dioscoreaceae), Dracaena fragrans (L.) Ker-Gaus 'Massangeana', D. marginata Lam., D. reflexa Lam. (Agavaceae), Enterolobium sp. (Leguminosae), ?Ficus sp. (Moraceae), Musa paradisiaca L. (Musaceae), Polyscias fruticosa (L.) Harms, P. fruticosa 'Elegans' (Araliaceae), Saccharum officinarum L. (Gramineae), Solanum tuberosum L. (tubers) (Solanaceae), Yucca sp., Y. elephantipes Regel (Agavaceae); orchids and packing material.

CONTROL: Studies on control measures are continuing at this time but one nursery has had success with weekly spraying of carbaryl (Sevin) on damaged plant areas and at the base of bamboo palms (see also Pigatti, et al., 1979). Lindane should offer better results due to its systemic action. It is possible that heavy spraying of the bacterial spray, Dipel, will also get into galleries so that larvae are infected.

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