On the presence of insects in oleaginous palmseeds from Surinam

by

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From the State Administration of Forestry at Paramaribo the department for Tropical Products of the Royal Tropical Institute in Amsterdam received several collections of four kinds of palmseeds for the purpose of chemical examination. The seeds in question were :
boegroemakka nuts, Astrocaryum sciophilum (Miq.) Pulle
awarra nuts, Astrocaryum segregatum Drude
maripa nuts, Maximiliana maripa (Mart.) Drude
maripa fruits, Maximiliana maripa (Mart.) Drude
kaumakka fruits, Acrocomia spec.

In all collections a small number of seeds was discovered to have been damaged by insects. The following kinds of insects were found :

1. *Pachymerus nucleorum* F. (Bruchidae) in maripa nuts, maripa fruits and boegroemakka nuts.
2. *Pachymerus bactris* L. in kaumakka nuts.
3. *Caryoborus serripes* Sturm (Bruchidae) in boegroemakka nuts and awarra nuts.
4. *Coccotrypes surinamensis* Schedl (Scolytidae) in boegroemakka nuts.
5. *Araecerus fasciculatus* Deg., the coffee bean beetle (Anthribidae) in boegroemakka nuts.
6. *Laemophloeus* spec., the flat grain beetle (Cucujidae) in boegroemakka nuts.
7. *Ephestia* spec. (Pyralide) in boegroemakka nuts.

A few observations on the biology of these kinds as well as on the damage caused by them may follow here. The three Bruchidae, *Pachymerus nucleorum, Pachymerus bactris* and *Caryoborus serripes,* belong to the subfamily of the Pachymerinae. With few exceptions these are indigenous in South America and develop only in palmseeds. According to LEPESME (1) a great number of palms serve as alimentary plants for *Pachymerus nucleorum*, best-known of all palmbruchids. BODKIN (2) claims the same for Maximiliana regia. Of the genus Astrocaryum, however, no mention is made.

On the exterior of the nuts there is for quite a while no sign of the severe damage caused by this Bruchid. According to statements in literature infection is made by the females which put their eggs in one of the three germ-pores of the nut. The maripa fruits, however, which we examined were also affected. In this case one can hardly imagine that the eggs were brought in through the germ-pores, for these were covered by the fruitcoat (pericarp). Perhaps one could imagine rather an infection in an earlier point of time. Whatever may be the mode of infection, the larvae feed on the endosperm. In one nut one or two larvae may grow. The pupation takes place inside the nut as well, and only when full-grown the beetle bores itself a way out. Clearly larvae as well as pupae are often exported within the seeds to other countries. All the same up to now this insect has not expanded its distribution area. It appears that the beetles do not cause new infections in stored quantities, though in

those seeds that have once been touched the destruction will continue. We may perhaps mention as an item of interest that the larvae of this Bruchid are eaten by the inhabitants of Bahia (3). The specimens found in the seeds of the palm Attalea speciosa are preferred. For the determination of the second species, *Pachymerus bactris* L., we have to express our gratitude to Mr. D. J. ATKINSON of the British Museum in London. As host plants of this species are mentioned Cocos coronata and Bactris minor; not mentioned is Acrocomia. Regarding to the infection the same is to be stated as for *Pachymerus nucleorum* (1).

The larva of *Caryoborus serripes* lives in seeds of Astrocaryum and Maximiliana. In the course of our examination we came across three adult beetles in one awarranut. This Bruchid too is harmless to stored-up provisions.

Of the coffee bean weevil only one specimen was discovered in the collection of boegroemakkanuts. This kind is well-known as a storage-insect though occasionally it causes damage to the growing crops as well. In our case it is therefore practically impossible to decide whether the infection occurred in a warehouse or, previously, without.

Coccotrypes surinamensis Schedl. Many specimens of these borers were found in the boegroemakkanuts. Some of them were sent on to Prof. Karl E. SCHEDL at Wildalpen (Austria) for determination. They proved to be of a new species, which was described under the above mentioned name (4).

As to the amount of damage, it should be mentioned that this was rather varied and presumably it depends on the number of the beetles that penetrated into one nut. Some nuts only showed galleries on the surface, whereas in others galleries had been bored further into the interior. In some cases, however, half of the endosperm had been destroyed. The presence of this insect was visible on the exterior owing to the entrance-holes which holes possibly at the same time serve as exit-holes. We found all specimens to be dead. In warmer countries, however, some kinds of this genus continue their harmful activities even after the picking of the nuts.

Besides these primary pests two secondary ones were stated. The first of these, the flat grain beetle, *Laemophloeus* spec., was of little importance in this connection. The larva of a meal moth of the genus *Ephestia* had caused extensive damage. In these cases the endosperm more and more proved to have been replaced by a mass of spinning-threads and excrements. To our regret the moths were found to be too badly squashed to allow the determination of the species. One is inclined to wonder by the way, how these moths would be alble to get out of the nut if the shell is not cracked through human agency.

Figures of some of the infested palmseeds on which this study was performed as well as of some of the beetles were published in the two papers quoted of the Royal Tropical Institute in Amsterdam (5 and 6), and in the description by SCHEDL.

References

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3. BONDAR, G., 1921, La larve de la noix des palmiers, Broteria, Braga, Ser. Zool. **19** (3): 125—135. Ref. in Rev. appl. Entom. **10**: 95.
4. SCHEDL, K. E., 1949, Tropical seed beetles of the genus *Coccotrypes* Eichh., Tijdschr. voor Entomologie **91**: 113—120.
5. Kon Inst. v. d. Tropen, Insecten in vethoudende palmzaden uit Suriname. Inl. en Onderz. Afd. Trop. Prod. 1948, p. 29—31.
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Oss, Lijsterlaan 12, October 1952.

Vlindervangsten in 1952. Op ± 3 km afstand van Zutphen ligt het landgoed „De Voorst". De Nederl. Heide Mij., aan wie dit landgoed behoort, was zo vriendelijk mij toestemming te verlenen hier entomologische waarnemingen te doen en te verzamelen. De belangrijkste vangst was stellig wel die van twee exx. van *Leucodonta bicoloria* Schiff. op 17.VI en 2.VII en van tien exx. van *Arctornis l. nigrum* Müller op 30.VI en 2.VII.

Voorts werden hier o.a. gevangen: *Deilephila porcellus* L., *Harpyia bifida* Brahm, *Stauropus fagi* L., *Hoplitis milhauseri* F., *Drymonia querna* F., *Dr. trimacula* Esp., *Dr. chaonia* Hb., *Pheosia gnoma* F., *Notodonta phoebe* Siebert, *Odonestis pruni* L., *Tethea ocularis* L., *Polyploca ridens* F., *Celama holsatica* Sauber, *Simyra albovenosa* Goeze, *Actinotia polyodon* Clerck, *Lampra fimbriata* Schreber, *Hoplodrina ambigua* Schiff., *Unca olivana* Schiff., *Lygephila pastinum* Tr., *Comibaena pustulata* Hufn., *Hemistola chrysoprasaria* Esper, *Lobophora halterata* Hufn., *Mysticoptera sexalata* Retzius, *Xanthorhoë biriviata* Bkh., *Ecliptoptera silaceata* Schiff., *Earophila badiata* Schiff., *Horisme vitalbata* Schiff., *Aleucis distinctata* H.-S., *Ennomos fuscantaria* Stephens, *Apeira syringaria* L., *Boarmia roboraria* F.

Verder vermeld ik de vangst van een ex. van *Gypsitea leucographa* Schiff. te Warnsveld op 13.IV.1952 en een ex. van *Catocala sponsa* L. te Hackfort op 8.VIII.1952. Van *Hopl. ambigua* werd ook een ex. te Warnsveld gevangen.

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Voorjaar 1953 te Apeldoorn. Van 22.II tot 5.V. leverde de lichtvangst slechts twee goede avonden op met een behoorlijke vlucht, 11 en 12.IV. De rest was slecht door de miserabele weersomstandigheden. Van de anders gewone soorten kwamen slechts enkele exemplaren, of helemaal niets. Andere anders exclusieve gasten kwamen juist in aantal, bijv. vijf ♂ ♂ van *Endromis versicolora* L. (de lampen branden op mijn balcon in de bebouwde kom!). Van de *Orthosia*'s waren *incerta* en *stabilis* talrijk, *gracilis* weinig, evenzo *populeti*, vijf *miniosa*'s, *pulverulenta* weer minder, *munda* slechts enkele, *gothica* gewoon en als verrassing op 12 April drie volkomen gave *opima*'s in drie vormen!

Van *Aleucis distinctata* H.-S. kwamen voor het eerst drie exemplaren op mijn lamp. *Lycia hirtaria* Clerck kwam geregeld (in 1952 geen enkele). Daarentegen was *Biston stratarius* Hufn. veel minder, terwijl van *Nyssia hispidaria* Schiff. nu geen enkel ex. verscheen (in 1952 twee). *Apatele aceris* L. kwam op 1.V, dus ongeveer 14 dagen te vroeg. *Eupithecia insigniata* Hb. zat 23.IV te Wiessel op een eikenstam. *Ectropis consonaria* Hb. was in de omgeving bepaald gewoon.

Op 1.V vond ik te Wiessel, waar de soort geregeld voorkomt, reeds een halfwas rups van *Rhyparia purpurata* L. en op diezelfde datum vloog *Eulype hastata* L. al, met enige exemplaren van *Araschnia levana* L.

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Aangeboden: EVERTS, Coleoptera Neerlandica, deel 1—3, in zeer goede staat. Brieven met bod aan:

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