

A B S T R A C T

A comprehensive and critical review of literature on the taxonomy, biology and behaviour of Hypothenemus hampei Ferrari (Coleoptera: Scolytidae) and investigations on its morphology, boring behaviour and life cycle are presented.

Morphological studies by light and scanning electron microscope provide a detailed description of external features of the male and female H. hampei, many of which might be distinguishing features for the species.

Male borers were not attracted to the green or red berries of Coffea arabica L. var. typica, and were incapable of boring into the berries. In an enclosed environment host finding, selection of boring site, boring of entrance hole and gallery through the pulp and of feeding gallery and egg chamber by the female H. hampei were significantly ($P = 0.05$) faster in the red than in green berries; the time spent from the initiation of boring into the pulp to the initiation of oviposition was 84.15 ± 3.2 hours in the red, and 178.72 ± 3.8 hours in the green berries. The females showed four distinct patterns of constructing the feeding galleries.

A semi-synthetic diet prepared with slices of endosperm showed promise as larvae and adults fed on it and a few individuals completed development from egg to adult.

The duration (days) of different developmental stages, as determined by the daily population counts in 20 laboratory - infested red berries were: embryonic, 4.34 ± 0.13 days; first instar larval, 8.1 ± 0.25 ; second instar larval, 6.0 ± 0.1 ; and pupal-pharate adult, 3.93 ± 0.14 (total 22.37 days at room temperature). The teneral adults attained maturity in about five days.

The first instar larvae (Mean head width 0.23 mm) contained both the sexes but only the females moulted to second larval instar (Mean head width 0.33 mm). However the larval pupal moult and adult emergence occurred simultaneously in both the sexes.

Oviposition started within two days of boring into the red berries; each female produced 105.3 ± 2.7 eggs during 30 - 34 days of ovarian cycle, 89% of which were oviposited between days 7 and 24 after infestation.

The longevity of male adults was 10 to 56 days. Reproducing females died at the end of the single ovarian cycle, while those in reproductive diapause survived 20 to 24 weeks of food scarcity.

The mean time for completing a generation was estimated to be 39 ± 3.5 days in red and 45 ± 4.6 days in green berries, which would permit about 7 to 8 generations between May and December in lowland Jamaican plantations.