ABSTRACT

Field preferences of *Hypothenemus hampei* Ferr. for typica (T), caturra (C) and geisha (G) varieties of *Coffea arabica* L. were investigated by surveying field population on the three varieties. The residual population of *H. hampei* in the unharvested and fallen dry berries was always significantly higher in C and T than in G. The populations of live and dead (figures in parenthesis) brood females in the perforated green berries of the new crop in June were 82 (18), 89 (11) and 58 (22) per 100 berry of T, C and G respectively. The population of different developmental stages of *H. hampei* increased throughout the year, the final means being 4291.13, 3666.4 and 2612.2 per 100 berries of C, T, and G respectively.

In olfactometer tests, the preference indices for C : T was 42.5 : 33.3(significant at $P< 0.05$), for C : G, 56 : 23.6(significant at $P< 0.01$) and for T : G, 41.5 : 35.3(not significant at $P< 0.05$). Glass chamber test revealed tactile and probably gustatory response of *H. hampei* in host selection. Significantly ($P< 0.01$) more borers examined the berries of C and G than those which accepted them, the respective numbers being 57.8 and 45.0% for C and 42.2 and 18.3 for G. No such differences were recorded on T berries. Tests with individual berries revealed that significantly more ($P< 0.05$) bored into C and T than G berries in 8 hr of observation. Such varietal distinctions were lost in dry berries.

The speed of boring through the pulp and into the endosperm was significantly ($P< 0.05$) faster in C and T than in G berries. After 3 days, 90, 70 and 53.5% of the borers had bored 2.1, 1.99 and 1.29 mm long galleries in C, T and G beans respectively.

Significantly ($P< 0.01$) fewer eggs were laid by *H. hampei* in G than in T or C; the number of F1 generation too was significantly higher in C (34.7) and T (22.0) than in G (13.8), after 7 weeks of infestation under laboratory conditions.

ABSTRACT (Contd.)

Sugar contents ranged from 62.1 to 104.7 mg in T, 98.3 to 202.2 mg in C and 81.1 to 124.7 $mg.g^{-1}$ in G. Lipid contents were 76.5 to 169.3 mg in T, 96.5 to 156.1 mg in C and 82.2 to 147.7 $mg.g^{-1}$ in G; and protein ranged from 83.3 to 144.5 mg in T, 56.5 to 149.1 mg in C and 35 to 138.5 $mg.g^{-1}$ in G berries of different developmental stages. Low protein levels in G berries may have adversely affected the developmental and reproductive physiology of *H. hampei* and created resistance against the pest.