*Tenebrio molitor* Linnaeus (Coleoptera: Tenebrionidae), a New Alternative Host to Rear the Pupae Parasitoid *Palmistichus elaeisis* Delvare & LaSalle (Hymenoptera: Eulophidae)

The parasitoid *Palmistichus elaeisis* Delvare and LaSalle 1993 (Hymenoptera: Eulophidae) develops mainly in Lepidoptera pupae, impeding the emergence of adults. This parasitoid could be used for the biological control of eucalyptus defoliating caterpillars because it was found in Brazil in *Eupseudosoma involuta* (Sepp) (Lepidoptera: Arctiidae), *Euselasia eucerus* Hewitson (Lepidoptera: Riodinidae) and *Sabulodes* sp. (Lepidoptera: Geometridae) (Bittencourt and Berti Filho, 1999) pupae. In addition, *P. elaeisis* is known to parasitize *Dione juno juno* (Cramer) (Lepidoptera: Nymphalidae) pupae in passion fruit in Rio de Janeiro State, Brazil (Gil-Santana and Tavares 2006).

*Palmistichus elaeisis* parasitized *Thyrinteina arnobia* (Stoll) and *Thyrinteina leucoceraea* Rindge (Lepidoptera: Geometridae) pupae in the field and from 85 to 100% of the *Bombyx mori* Linnaeus (Lepidoptera: Bombycidae), *Pseudoletia sequax* Franeclmont, *Alabama argillacea* (Huebner) (Lepidoptera: Noctuidae), *Dirphia moderata* Bouvier (Lepidoptera: Saturniidae), and *Halysidota pearsoni* Watson (Lepidoptera: Arctiidae) pupae in the laboratory (Pereira and Zanuncio 2005).

The use of parasitoids in biological control programs of insects depends on finding adequate alternative host to mass rear them (Lemos *et al.* 2003, 1999; Pratissoli *et al.* 2004; Ramalho and Dias 2003). This is necessary, because these natural enemies should be reared with alternative hosts that present low production costs without reduction on the efficiency of natural host in the field (Pereira 2006).

*Tenebrio molitor* Linnaeus (Coleoptera: Tenebrionidae) is easy to mass rear inexpensively (Otuka *et al.* 2006) and preliminary tests in the laboratory showed parasitism by *P. elaeisis* on pupae of this beetle. For this reason, the parasitism of this natural enemy on *T. molitor* pupae was studied.

One hundred and thirty, 24 h old, *T. molitor* pupae (93.70 ± 1.13 mg), were isolated in glass tubes (14 × 2.2 cm) and each pupae was exposed to four, 72 h old *P. elaeisis* females. These tubes were kept at 25 ± 2°C, 70 ± 10% relative humidity and photo phase of 14 h in the Laboratory of Biological Control of Insects of the Federal University of Viçosa, Viçosa, Minas Gerais State, Brazil. The female wasps were removed from the tubes after 24 h. The pupae were observed and data recorded for the duration of the life cycle (egg-adult); percentage of pupa parasitism (discounting the natural mortality of the host) (Abbott 1925); percentage of emergence of parasitoids, the number and size of the parasitoids from each *T. molitor* pupae; number of immature parasitoids that did not complete development; and parasitoid sex ratio (sr = number of females/number of males + females) of this wasp. The sex of *P. elaeisis* adults was determined based on morphological characteristics of their antenna and abdomen (Delvare and LaSalle 1993). Size measurements were obtained with a micrometric ocular coupled to a stereomicroscope.

The percentage of parasitism and emergence of *P. elaeisis* from *T. molitor* pupae was 100.00 and 90.76%, respectively, with a duration of the life cycle (egg-adult) of 23.42 ± 0.18 days. The number of individuals of this parasitoid produced per pupa of *T. molitor* was 70.07 ± 2.50, with 16.43 ± 0.59 female progeny produced per female of *P. elaeisis*, and a sex ratio of 0.94 ± 0.01. The size of the body and the head capsule (mm) of female and male progeny of *P. elaeisis* were 2.00 ± 0.03; 0.58 ± 0.01 and 1.34 ± 0.02; 0.45 ± 0.01,