First Report of the Occurrence of Weevils (Insecta: Coleoptera) in Plantations of Green Tea in Brazil

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The plant *Camellia sinensis* (L.) O. Kunze (Ericales: Theaceae) serves as the main source of tea, which is an important beverage consumed worldwide. Tea products generally consist of *C. sinensis* leaves and can be classified into 3 main types: black, oolong, and green tea (Hicks 2001; Hernández Figueroa et al. 2004; Owour et al. 2010).

*C. sinensis* is grown in Asia, Africa, Latin America, and Oceania. In 2006, Brazil produced approximately 8.4 thousand tons of this plant, of which 3,400 tons were exported (Hicks 2001, 2009; Kovalyova 2012). The main Brazilian producing area is located in the Vale do Ribeira region in the state of São Paulo, and in particular the cities of Cajati, Pariguera-Açu, and Registro. The importance of performing research to encourage and facilitate the expansion in the cultivation and production of high-quality tea cannot be understated (Lima et al. 2009).

Insects and mites are considered the main factors that limit tea productivity, causing a drop of 11-55% in production, resulting in economic losses ranging from 500 million to 1.0 billion dollars (Hazarika et al. 2009).

In this study, we observed that in the early morning, weevils moved up to the apex of the plant, reaching the leaves that are collected for the production of tea (Figs. 2A and 2B). However, the presence of these insects at these sites decreased with increasing ambient temperature.
Near noon, the weevils moved to the lower parts of the plants and returned to the topmost branches only at the end of the day, when the temperature was mild. Lunz et al. (2011) noted that the most intense periods of foraging of *C. azureipes* were the early morning or early evening hours.

The largest number of weevils was captured by leaf harvesters, particularly at the beginning and end of the day (Figs. 2C and 2D). The damage caused by these insects varied in intensity, depending on the time of yr and fluctuations in the population. During periods of high infestation, leaf damage was small; however, groups of the insects were found in batches of dry leaves after processing. Therefore, the largest problem is associated with the preparation of the material for packaging and commercialization (Fig. 2E). The high temperatures used in drying the product did not disintegrate the weevils, making it possible to find insect fragments, mostly white in
color, together with the dehydrated leaves, thus devaluing the product and destroying its commercial value, and ultimately affecting the exportation of green tea (Fig. 2F).

Tea is considered one of the most widely consumed beverages worldwide, with increasing demand from consumers and importers for teas produced without contaminants. As a consequence, currently the standard for the use of insecticides in tea crop and the residue limits are more stringent. Implementation of integrated pest management (IPM) in tea crops can help to avoid the overuse of pesticides and subsequent residues in the final product (Hazarika et al. 2009). The correct identification of insect pests is the first step toward the development of IPM programs.

Fig. 2. A. *Camellia sinensis* leaves; B. *Compsus niveus* on tea leaf; C. Collection of leaves; D. Withdrawal of leaves collected; E. Prepared product to be packaged; and F. Tea with fragments (white) of the curculionid's carapace, legs and wings.
SUMMARY

We recorded the occurrence of Compsus sp., Compsus niveus, Platyomus cultricollis, and Rembus auricinctus (Coleoptera: Curculionidae) in tea plantations in the municipality of São Miguel Arcanjo, SP, Brazil. The damage caused by these insects is related mainly to the presence of insect fragments in dried tea leaves, hindering the marketing of the product. This is the first report of the occurrence of weevils in tea crops in Brazil.

Key Words: Camellia sinensis, Compsus niveus, Compsus sp., Platyomus cultricollis, Rembus auricinctus.

REFERENCES CITED


