Notas Científicas

Spittlebug *Cephisus siccifolius* damaging eucalypt plants in the State of Bahia, Brazil

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Abstract – Most common pests of eucalyptus plants in Brazil are leaf cutting ants and defoliating caterpillars. Other groups, eventually, feeding on eucalyptus include Heteroptera and cicadas. The objectives of this work were to identify and to describe attack symptoms of *Cephisus siccifolius* (Walker 1851) (Hemiptera: Aphrophoridae) on eucalyptus trees in a stand of 25.77 hectares in the State of Bahia, Brazil, where 99.3% of them were attacked by this spittlebug. Damage was more severe on branches and leaves. Tree death was, relatively, low while those cut showed 4.7 colonies of this spittlebug with 21.9 nymphs per colony. Cultural control with the removal of trees attacked was recommended.

Index terms: forest entomology, eucalypt pest, Aphrophoridae.

Cigarrinha-de-espuma *Cephisus siccifolius* em plantio de eucalipto clonal no Estado da Bahia, Brasil

Resumo – Os insetos-praga mais comuns em plantios de eucalipto no Brasil são formigas cortadeiras e lagartas desfolhadoras. Eventualmente, outros insetos como percevejos e cigarrinhas podem danificar essas plantas. O objetivo deste trabalho foi identificar e descrever os sintomas de ataque, em um plantio de eucalipto de 25,77 hectares, no Estado da Bahia, onde 99,3% das árvores tinham sido atacadas pela cigarrinha-de-espuma *Cephisus siccifolius* (Walker 1851) (Hemiptera: Aphrophoridae). Os danos foram maiores em galhos e folhas. A mortalidade de árvores foi baixa, apesar de se observar 4,7 colônias de cigarrinhas por árvore, com 21,9 ninfas por colônia. O corte das árvores infestadas foi recomendado como controle.

Termos para indexação: entomologia florestal, pragas de eucalipto, Aphrophoridae.

Most common insect pests of eucalyptus include species of Hymenoptera, mainly leaf cutting ants (Zanetti et al., 2000; Zanuncio et al., 2002), defoliating caterpillars (Zanuncio et al., 2003), termites (Moraes et al., 2002), defoliating beetles and woodborers (Ribeiro & Zanuncio, 2001). Species of other groups such as the green cicada *Empoasca kraemeri* Ross and Moore 1957 (Hemiptera: Cicadellidae) and Heteroptera species of the Coreidae family (Zanuncio et al., 2001) can also damage eucalyptus trees in Brazil.

Species of spittlebug are common in Brazil damaging pastures (Valério & Koller, 1992) but some of them occasionally feed on trees (Cuspidores..., 1940; Golfari, 1963; Paschoal et al., 1985). Nymphs of spittlebugs produce white foam, which is characteristic of this group of Hemiptera (Figure 1A and B) as a protective behavior against humidity losses and attack by natural enemies (Paschoal et al., 1985).

A severe attack of spittlebug was observed in a plantation with eucalyptus clone 1486, approximately seven years old, in September 2000, in Esplanada, State of Bahia, Brazil. Another occurrence of a spittlebug was found in December 2003 in sprouting of *Eucalyptus urophylla* S.T. Blake approximately one and a half year old, in Aporá in the same State.

The objective of this work was to identify, to describe and to characterize attack symptoms and to suggest control measures for this spittlebug.

Species that originated the clone 1486, denominated Rio Claro hybrid are not known. This clone was planted in Esplanada in 25.77 hectares in June 1993 and it presented average productivity compared to the most productive ones in this area (mean annual increment of 27.3 m^3 ha^{-1}). North, south and east sides of the stand with the clone 1486 were planted with other clones and the west area included a coconut plantation (*Cocos nucifera* Linnaeus).

Aporá is located near Esplanada and it comprised 276 hectares planted with *E. urophylla* in August 1985. This is the third cycle of this plant and the trees were cut and removed for the second time in 2001. Sprouting of the eucalyptus plants were 1.5 years old in December 2003 and this plantation will be replaced by a new one with seedlings.

Trees of the clone 1486 were observed to describe characteristics of the outbreak and intensity of damage by a spittlebug. Ten planting lines of the clone 1486 were observed (one out of each 15 lines) and two adjacent lines were observed per stand around this clone with a total of six lines in three bordering stands. The first line of these stands was observed and the other one was 30 m away. Ten trees were observed in each line. Mortality and sprouting of eucalyptus plants, besides the presence and the colonies of the spittlebug, vigor of trees and deformed leaves (coriaceous leaves) and branches (callosities) in plants of the hybrid 1486 were observed on each 50 trees, at the beginning, middle and at the end of each line.

One tree out of every fifty was cut to determine attack intensity and number of colonies per tree and of nymphs per colony of this spittlebug, besides deformed leaves and abnormal sprouting on the branches and the presence of natural enemies.

Nymphs of the spittlebug were collected on branches of the clone 1486, in the region of Esplanada and they were maintained in laboratory in screen cages with eucalyptus branches. Nymphs of different instars of this spittlebug were collected in Aporá and maintained in cloth bags involving *E. urophylla* branches in the field aiming to obtain adults of this insect.

Figure 1. Nymph (A), colony of nymphs (B**)** and adult (C) of the spittlebug *Cephisus siccifolius* (Hemiptera: Aphrophoridae) on eucalyptus.

No adult of the spittlebug was found during the outbreak and none of them was obtained from nymphs of this species maintained in cloth cages in laboratory. This may represent a poor adaptation of this insect to this eucalyptus, which would hinder its normal development. On the other hand, cloth cages involved some colonies of the spittlebug on sprouting of *E. urophylla* from Aporá and they produced adults, which were identified as *Cephisus siccifolius* (Walker 1851) (Hemiptera: Aphrophoridae) (Figure 1 C). Morphological characteristics of nymphs indicate that this spittlebug is, probably, the same collected in the region of Esplanada. This species belongs to the family Aphrophoridae whose typical spittlebug damages mainly arboreal tree species and comprehends, approximately, 900 species in the world (Tzung & Tze, 2002).

Damage by the spittlebug *C. siccifolius* occurred in, practically, all trees of the stand with plants of the clone 1486. Branches and leaves of this clone were 99.3% deformed (CV = 1.7%) and its plants showed coriaceuos leaves, losses of leaves, callosity in plant extremities and sprouting in branches and trunks (Figure 2 A and B) but only 1.3% tree death (CV = 1.8%). This can be related to the introduction of toxins during sap suction by nymphs of *C. siccifolius*. No natural enemy was observed on colonies of this spittlebug. Deformed branches and leaves are characteristic of attacks by spittlebugs on arboreal species, which can affect height growth due to the reduction on photosynthetic activity but it rarely causes tree death. Nymphs and adults of *C. siccifolius* were reported wrapped by white foam in leaves of plants of different genera including *Cassia* but with low damage (Hathaway, 1943).

Trees of the clone 1486 cut showed 4.7 colonies (CV = 56.9%) of *C. siccifolius* each and an average of 21.9 nymphs per colony (CV = 40.4%). The other eucalyptus clones around the attacked area showed no symptoms or signs of occurrence of this spittlebug even in transition areas between the stand of the clone 1486 and the others.

Species of spittlebug such as those of the Aphrophoridae family are common in arboreal species of Asia, Europe and North America (Tzung & Tze, 2002). *C. siccifolius* prefers to attack arboreal plants

Figure 2. Damage caused by *Cephisus siccifolius* (Hemiptera: Aphrophoridae) characterized by deformities and callosities on an eucalyptus branch (A) and intensive losses of leaves on eucalyptus trees of the clone 1486 (left) besides another clone without damage (right) (B).

and it has been observed on *Acacia melanoxylon*, *Erythrina galli*, *Robinia hispida*, *Robinia pseudacacia*, *Schnus molle*, *Wistevia sinensis* and *Prosopis algarrobila* (Hathaway 1943) and *Eucalyptus* spp. in Argentina (Golfari, 1963).

In Brazil, *C. siccifolius* was reported in arboreal plants such as *Acacia* sp., *Cassia* sp., *Cassia javanica*, *Caesalpinia ferrea* and *Phytolacea dioica* (Silva et al., 1968). High populations of this species were reported on branches of *Acacia* sp. in Niterói, State of Rio de Janeiro, Brazil (Cuspidores..., 1940) and they were also found on *Caesalpinia peltophoroides* (Leguminosae: Caesalpinioidae) in Cotia, State of São Paulo, with their young stages and adults wrapped by a white foam on branches (Paschoal et al., 1985). These occurrences did not show significant damage, but spittlebugs of the Cercopidae family were reported as the main pests of pastures in Brazil with severe impact on grass productivity and quality (Valério & Koller, 1992).

The occurrence of the spittlebug *C. siccifolius* represents the first report of this species damaging eucalyptus plants in Brazil. A cultural control was adopted on all trees of the clone 1486 and the presence of this spittlebug was cut in the region of Esplanada to prevent tree death and losses on wood production.

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