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LEPTOCYBE INVASA (HYMENOPTERA: EULOPHIDAE), AN EXOTIC PEST OF EUCALYPTUS, IN MINAS GERAIS STATE, BRAZIL

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The gall-wasp Leptocybe invasa Fisher & La-Salle (Hymenoptera: Eulophidae) is an exotic pest native to Australia. Its adults are tiny wasps with shiny dark brown and 1.2 mm long. Only females of this species have been recorded, except one male for Turkey (Doganlar 2005). Leptocybe invasa is generally parthenogenetic with females giving birth to females and a huge population growth. The female oviposits in the apical plant buds, where galls are formed and visible in few weeks. The life cycle of this pest lasted approximately 130 days from egg laying to adult emergence in Israel (Mendel et al. 2004). Leptocybe invasa females fed with honey solution had 7.67 ± 0.93 days longevity, 158.70 ± 4.62 eggs/female, and 45.96 ± 0.52 days (35-73 days) from egg to adult in Thailand (Sangtonprao 2011).

The relationship between L. invasa and altitude in Uganda was negative, being absent from eucalyptus plantations at altitudes between 1,938 to 2,452 m. Leptocybe invasa was found on Eucalyptus camaldulensis, E. grandis, E. robusta, and E. saligna, but not on E. maidenii outside its ecological range. Its incidence is generally higher on hybrid E. grandis × E. camaldulensis, and E. grandis × E. urophylla.

Fig. 1. Eucalyptus clone plants infested with Leptocybe invasa (Hymenoptera: Eulophidae) in Paraopeba municipality, Minas Gerais State, Brazil.
Leptocybe invasa was detected in Brazil in 2008 on E. camaldulensis clones as a pest with high reproductive capacity and damage (Wilcken & Berti Filho 2008;). An outbreak of this insect was detected in 29 Nov 2009 in Maranhão State, Brazil on E. grandis, E. propinqua, E. resinifera, E. robusta, E. saligna, E. tereticornis, and on the hybrids, E. urophylla × E. grandis, and E. pellita × E. tereticornis, and others based on E. brassiana, E. dunnii, and E. pellita and E. propinqua. Seedlings for these experiments and the plantations came from Bahia State, Brazil where the insect was present (Wilcken & Berti Filho 2008).

Genetic resistance is a promising and long-term control tactic for L. invasa and the level of susceptibility of E. camaldulensis, E. urophylla, and E. grandis to this insect varies with origin of these plants (Thu et al. 2009).

In Minas Gerais State, Brazil, L. invasa was detected in Aug 2012 (Fig. 1) in the Itapoa farm, Paraopeba municipality (S 19° 18' 06" -W 44° 30' 13") in research, nursery and field areas, indicating that this insect was present in this region before Aug 2012. Maximum, minimum and ambient temperatures and relative humidity were 23 °C, 14 °C and 21 °C, and 67%, respectively.

The infestation of L. invasa was evaluated on nine eucalyptus plants in the field and its galls counted on 100 leaves at lower, middle, and top of each plant. Leptocybe invasa galls were found in 33, 36, and 30% of the leaves at lower, middle and top parts of the plants, respectively, with 2.40 galls/leaf. Monitoring in the nursery during pollination was conducted on 5 leaves/plant using severity scale: 0 (no galls/leaf), 1 (low, 1 gall/leaf), 3 (moderate, 3 galls/leaf), and 5 (high, 5 galls/leaf) (Fig. 2). The genetic material with galls (35%) was classified as grade 5 (71.0%), 3 (14%) and 1 (15.0%) (Fig. 3).

Leptocybe invasa is a significant pest problem in Minas Gerais State, Brazil, because this state has 1,400,000 ha of eucalyptus plantations (ABRAF 2012).

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SUMMARY

The gall-wasp, *Leptocybe invasa* Fisher & LaSalle (Hymenoptera: Eulophidae), a pest native to Australia, was introduced into several countries with eucalyptus cultivation. This insect has high damage capacity and reproductive rate. *Leptocybe invasa* was recorded in the Itapoã farm (S 19° 18' 06" -W 44° 30' 13"), Paraopeba municipality, Minas Gerais State, Brazil in areas of research, nursery and in the field. Maximum, minimum, and ambient temperatures and relative humidity were 23 °C, 14 °C and 21 °C and 67%, respectively. *Leptocybe invasa* is a significant pest problem in Minas Gerais State, Brazil, because this state has 1,400,000 ha of the eucalyptus plantations of Brazil.

Key Words: forest plantation, damage infestation, host resistance, invasive species

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