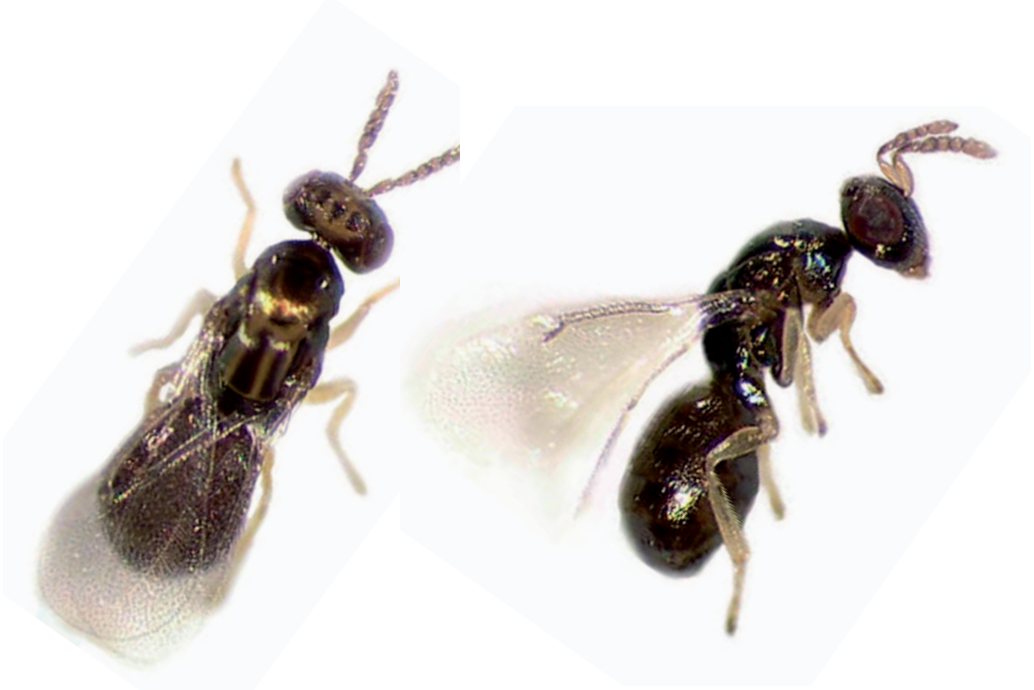
Leptocybe invasa

Order and Family: Hymenoptera: Eulophidae
Common names: blue gum chalcid

The blue gum chalcid, *Leptocybe invasa* Fisher & LaSalle, 2004, is a newly described insect that is a major pest of young eucalypt trees and seedlings. Believed native to Australia, it is currently spreading through Africa, Asia and the Pacific, Europe and the Near East. Information on the taxonomy, distribution, biology and economic impacts of the blue gum chalcid are still being investigated.



Z. MENDEL

Adult female Leptocybe invasa

DISTRIBUTION

Native: believed native to Australia (Asia and the Pacific) although its distribution there is still unknown.
Introduced: Africa: Algeria, Kenya (2002), Morocco, South Africa (2007), the United Republic of Tanzania (2005), Uganda (2002)
Asia and the Pacific: India, New Zealand, Thailand, Viet Nam
Europe: France, Italy, Portugal, Spain, Turkey
Near East: Islamic Republic of Iran, Israel, Jordan, the Syrian Arab Republic

IDENTIFICATION

The female chalcid is a small wasp, brown in colour with a slight to distinctive blue to green metallic shine (TPCP, 2005). The average length is 1.2 mm. With the exception of one record describing males in Turkey, only females of this species, which reproduce by parthenogenesis, have been observed (EPPO, 2008). Larvae are minute, white and legless.

HOSTS

The blue gum chalcid has a relatively narrow host range attacking eucalypt species (Mendel *et al*., 2004). Suitable host species include *Eucalyptus saligna*, *E. grandis*, *E. deanei*, *E. globulus ssp. globulus*, *E. nitens*, *E. botryoides*, *E. camaldulensis*, *E. gunnii*, *E. robusta*, *E. bridgesiana*, *E. viminalis* and *E. tereticornis*.

BIOLOGY

Attacks take place within 1 to 2 weeks of bud break. Eggs are laid in the epidermis of the upper sides of newly developed leaves, on both sides of the midrib, in the petioles and in the parenchyma of twigs (TPCP, 2005; EPPO, 2008). White minute, legless larvae develop within the host plant. Five stages of gall development have been recorded on *E. camaldulensis* in Israel (TPCP, 2005).

- The first symptoms of cork tissue appearing at the egg insertion spot begin one to two weeks after oviposition. A small change in the morphology of the attacked tissue is evident, the cork scar becomes bigger and the section of the midrib that carries the eggs often changes colour from green to pink.
- The typical bump shape of the galls develops and they reach their maximum size of about 2.7 mm wide.
- The green surface colour fades and tends to become pink while retaining its typical gloss.
- Glossiness of the gall surface is lost and its colour changes to light or dark red depending on whether the galls are present on leaves or stems.
- The galls change colour to light brown on leaves and red on stems. Emergence holes of the adult wasps are evident.

Two to three overlapping generations per year have been observed in the Islamic Republic of Iran, Israel and Turkey (Mendel *et al.*, 2004).

Z. MENDEL

Ovipositing female Leptocybe invasa

SYMPTOMS AND DAMAGE

The developing larvae form bump-shaped galls on the leaf midribs, petioles and stems of new growth of young eucalypt trees, coppice and nursery seedlings. Severely attacked trees show leaf fall, gnarled appearance, loss of growth and vigour, stunted growth, lodging, dieback and eventually tree death (Mendel *et al*., 2004).

During outbreaks wasp pressure is quite intensive and all new growth may be damaged. While the impact of the wasp on mature tree development is not yet clear, galls can be found on most leaves if the wasp occurs in large numbers (TPCP, 2005).

Damage caused by Leptocybe invasa *on eucalypt branches and leaf petioles, Kibaha, the United Republic of Tanzania. Left: young galls; right: older galls with exit holes*

DISPERSAL AND INTRODUCTION PATHWAYS

Possible pathways of introduction include movement of nursery stock. The adult wasps are very small and are thus incapable of long distance flight.

CONTROL MEASURES

There are currently no control measures for *Leptocybe invasa* although research on possible biological control agents is ongoing in Australia and Israel.

Aprostocetus sp., *a natural enemy of* Leptocybe invasa, *recently released in Israel*