



The Asia-Pacific Forest Invasive Species Network (APFISN) has been established as a response to the immense costs and dangers posed by invasive species to the sustainable management of forests in the Asia-Pacific region. APFISN is a cooperative alliance of the 32 member countries in the Asia-Pacific Forestry Commission (APFC) - a statutory body of the Food and Agriculture Organization of the United Nations (FAO). The network focuses on inter-country cooperation that helps to detect, prevent, monitor, eradicate and/or control forest invasive species in the Asia-Pacific region. Specific objectives of the network are: 1) raise awareness of invasive species throughout the Asia-Pacific region; 2) define and develop organizational structures; 3) build capacity within member countries and 4) develop and share databases and information.



Blue Gum Chalcid



Scientific name: *Leptocybe invasa*

Common name: Blue Gum Chalcid

Taxonomic position: Phylum: Arthropoda

Class: Insecta; Order: Hymenoptera

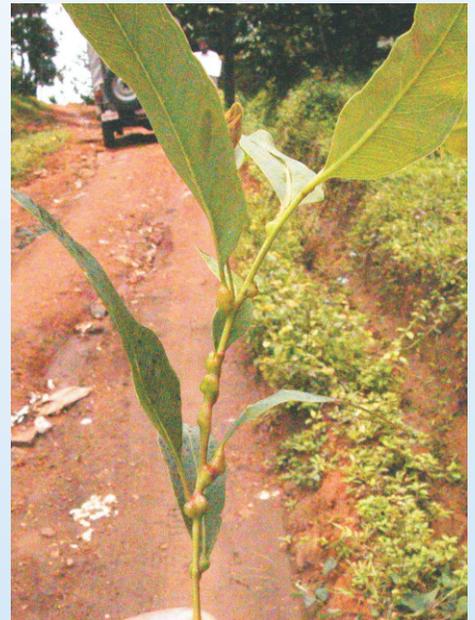
Family: Eulophidae

Introduction: *Leptocybe invasa*, Fisher & La Salle, commonly called Blue Gum Chalcid, is a newly described gall-inducing wasp species currently spreading in many countries and causing damage to young eucalypt plantations and nurseries. Galls induced by this wasp can cause serious injuries to trees, thereby weakening them. Information on the taxonomy, distribution, biology and economic impacts of the Blue Gum Chalcid are still meager.

Distribution: Believed to be a native of Australia, where its distribution is still unknown, the wasp has spread to most eucalypt-growing countries in Africa, Asia and the Pacific, Europe, North America and the Near East. In the Asia-Pacific region it is a threat in countries like Cambodia, Thailand, Vietnam, India and New Zealand. Outside its native range, the wasp was first recorded in the Middle East in the year 2000; in Uganda, Kenya and India in 2002; in Tanzania in 2005; and in South Africa in 2007.

Hosts: The wasp has a relatively narrow host range. It attacks the leaves and stems of young eucalypt trees and seedlings. 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: The female adult wasp is 1.1 - 1.4 mm long. The body is brownish in color with a blue to green metallic shine. Fore coxae are yellow; mid and hind coxae are brown. The scape of the antennae is yellow, with the rest of the segments brown. Males are unknown except for one record from Turkey. Females reproduce by parthenogenesis. Larvae are minute, white and legless.



Stem and petiole gall caused by *L. invasa* on eucalypt seedlings

Symptoms: *L. invasa* causes bump-shaped galls on the midrib, petioles and stems of young eucalypt trees, young coppice and seedlings. Severely affected trees show leaf fall, gnarled appearance, loss of vigor, stunted growth, dieback and

eventually tree death. The leaves of intensively growing trees may carry over 50 galls per leaf.

Damage: The adult wasps lay eggs inside tender leaves, especially the epidermis of the upper side of newly developed leaves, on both sides of the midrib, petiole and in the parenchyma of twigs. After hatching, the larvae remain in a cavity formed within the plant tissues and feed on the plant sap and the injury thus caused results in the formation of galls. The larvae develop inside the galls; adults then emerge leaving round exit holes. The attack by the wasp takes place within 1-2 weeks of the bud breakout. In Israel, planting of *E. camaldulensis* was stopped because of extensive attacks by the wasp. In India, the wasp poses a threat to an estimated 8 million ha of eucalypt plantations.

Spread: The movement of eucalypt seedlings is one of the ways by which the wasp spreads. The adult wasp is very small and hence cannot fly long distances.

Control: No effective control measures are currently available. The following interim measures are recommended to manage the wasp problem: 1) periodic monitoring of infestation in nurseries and plantations; 2) mechanical removal of affected plant parts and subsequent burning; and 3) avoid production and planting of highly susceptible clones. Application of systemic insecticides like Rogor or Metacid 50 (@ 2ml/1 litre water) on foliage at fortnightly intervals is effective. Recently, Israel introduced two parasitoids, namely, *Quadrastichus mendeli* and *Selitrichodes kryceri*, from Australia which may offer a potential for biological control. Utmost caution is warranted to prevent transportation of infected seedlings to disease free areas.

References:

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Galls showing exit holes of the wasp *Leptocybe invasa* on eucalypt branches



A eucalypt seedling affected by Blue Gum Chalcid



Biocontrol agent- *Quadrastichus mendeli*