

Bougainvillea Mealybug

Phenacoccus peruvianus



Figure 1. Colony of Bougainvillea mealybugs on *Bougainvillea* causing necrosis and dieback

Background

Phenacoccus peruvianus Granara de Willink is a South American mealybug pest of bougainvillea, which was first described in 2007. Prior to being named, however, it had already been introduced into Europe and was spreading rapidly in the Western Mediterranean. It is commonly known as the bougainvillea mealybug because of its preference for this host. Breeding populations of bougainvillea mealybug have been found in England on bougainvillea at commercial plant nurseries in Wiltshire (2003) and Dorset (2011), and at a botanical garden in Surrey (2005). In the latter case, the plants appear to have been infested for two years before the mealybug was reported. There were no recent import connections for any of these incursions. The mealybug populations damage the plants by causing necrosis of the foliage, leaf loss and die back (Fig. 1). In each case, samples were collected by the Plant Health and Seeds Inspectorate and submitted to The Food and Environment Research Agency laboratory at Sand Hutton for identification; and control measures were taken.

Geographical Distribution

Bougainvillea mealybug is native to South America (Argentina, Peru) and has been introduced to Europe, being first recorded in 1999 from Almeria, Spain. Since then it has naturalised along the Mediterranean coast of France, Monaco and Spain, southern coast of Portugal, and in the Balearic Islands, Corsica and Sicily. Incursions have also occurred in England on indoor plantings and on sheltered plants outdoors.

Host Plants

Bougainvillea mealybug is polyphagous, occurring on woody plants belonging to nine families: Acanthaceae (*Justicia*); Amaranthaceae (*Alternanthera*); Asclepiadaceae (*Araujia*); Asteraceae (*Baccharis*, *Eupatorium*); Aucubaceae (*Aucuba*); Myoporaceae (*Myoporum*); Nyctaginaceae (*Bougainvillea*); Scrophulariaceae (*Buddleja*); Solanaceae (*Cestrum*, *Solanum*). It occurs most frequently on bougainvillea.



Figure 2. Bougainvillea mealybug adults may be recognised by the lack of marginal wax filaments, which are present in other mealybugs found in glasshouses in Britain



Figure 3. Bougainvillea mealybug, second-nymphal instar female; they can wander over the foliage relatively quickly



Figure 4. Bougainvillea mealybug ovisacs occur in conspicuous clusters on the foliage and stems



Figure 5. Bougainvillea mealybug ovisacs, adults and immature frequently occur on the undersides of the foliage



Figure 6. Bougainvillea mealybug ovisacs and early instars



Figure 7. Bougainvillea mealybug, close up of the dense white waxy ovisacs and an adult female

Description

Adult females (Fig. 2) are elongate oval, greyish with a green tinge, covered in a thin layer of mealy white wax, and attain a length of 3 mm. They may be distinguished in life from other mealybugs commonly found on indoor plantings in Britain by the lack of marginal and caudal wax filaments, which are well developed in *Pseudococcus* species and moderately developed in citrus mealybug *Planococcus citri* (Risso). The immature stages (Fig. 2) are similar in appearance to the adults but smaller. They can move relatively quickly, or at least more quickly than most mealybugs encountered in Britain. The first instars are a pale-orange colour (Figs 5-6), and are very small being about 0.4 mm long.

Pest Biology, Dispersal and Detection

Adult and nymph bougainvillea mealybugs mainly feed on the lower surfaces of the foliage, but are also found on the growing shoots, bark, and occasionally the upper leaf surfaces. In Britain, all developmental stages have been found in July and September and it would appear that it can breed continuously if environmental conditions are favourable. No males were observed and they may reproduce parthenogenetically, although this has not been proven.

The first-nymphal instars or 'crawlers' (Fig. 6) have a relatively low natural dispersal potential and often settle to feed within a short distance of their parent. Some of the crawlers may be dispersed over longer distances by air currents or be transported by other animals. Dispersal is likely to occur more rapidly and over longer distances with the movement of infested plants in trade. The rapid spread in the Western Mediterranean is most likely to be due to movement of mealybugs in trade.

Infestations of bougainvillea mealybug are readily detected by the highly conspicuous white wax, elongate ovisacs (Figs 1 and 4-7) that form dense groups on the undersides of the foliage and on the stems. The foliage is contaminated with honeydew excreted by the mealybugs, which serves as a medium for the growth of sooty moulds, which can disfigure the plants. The mealybugs may also be detected by the presence of ants, and less frequently wasps and flies, which feed on the honeydew excreted by the insects.

Economic Importance and Damage

There is almost no information published on the economic importance of bougainvillea mealybug, but it has caused significant damage to ornamental bougainvillea plants in Britain, ruining their aesthetic appearance and reducing their market value. Large mealybug populations cause necrosis of the foliage, leaf loss, die back, and moulds grow on the excreted honeydew.

Advisory Information

Bougainvillea mealybug is widely naturalized in the Western Mediterranean and bougainvillea plants are moved freely within the European Union. There is a risk therefore, of continual introduction of the mealybug into Britain on growing plants, especially as early instars and low level infestations are easily overlooked. It is advisable to check plants for pests such as mealybugs before purchase and before introducing them into a greenhouse or conservatory. Cultural control of bougainvillea mealybug can be achieved by removing and carefully disposing infested leaves and stems.

The larvae of *Cryptolaemus* sp. ladybirds are available to gardeners and professional growers for the biological control of mealybugs. They are most effective in summer and need temperatures of at least 20°C for a few hours a day. The adults are strong flyers and will fly out of open vents or doors, so these would need to be netted to prevent escape.

For chemical control, systemic insecticides can be used. For ornamental plants in greenhouses or conservatories, gardeners can use products containing thiacloprid (e.g. Baby bio houseplant insecticide), acetamiprid (Bug Clear Ultra), thiamethoxam (e.g. Bug attack granules) or imidacloprid (e.g. Bug Free extra). Physically acting products such as those containing maltodextrin (e.g.

Eradicoat) or urea (e.g. SB plant invigorator) are also available. Physically acting products are likely to have less of an impact on natural enemies, but their impact on the mealybugs is likely to be more short lived. Suitable products for commercial growers are those containing acetamiprid (e.g. Gazelle), thiacloprid (e.g. Calypso) and drenches including imidacloprid (e.g. Intercept 70WG). For physical control, growers can use products containing fatty acids (e.g. Savona), maltodextrin (e.g. Majestik) or urea (e.g. SB plant invigorator).

Statutory action will not be taken against findings of bougainvillea mealybug and it is not necessary to notify the Plant Health and Seeds Inspectorate if the pest is found.

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