

## Blisters on Oak Leaves:

Holm Oak Felt Gall Mite & Oak Leaf Blister Fungus (*Aceria ilicis* & *Taphrina caerulescens*)

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### Identification, Biology & Management

There are two causes of blister-like galls on oak leaves (Figure 1); gall mites or a fungus, each with somewhat different treatment requirements. In both cases, typically the upper leaf surface is convex and the lower concave, although inversions are possible. Thankfully, there is a key feature to discern the two; mite galls have a velvet-like hairy underside, while the fungus lacks this and may have a grey colouration. In both cases the 'blistered' areas may die off.



Figure 1: Blister symptoms on upper leaf surface, which could be caused by either gall mites or fungus.



Figure 2: Holm oak felt gall mite galls on lower leaf surface.

### Gall Mites

Typically the oak blisters reported are those caused by gall mites (Figure 1). Gall mites are microscopic and feed on leaves while at the same time excreting a chemical. This causes distorted and deformed growth, which is then used as habitat and feeding grounds by the mites. Some species will live within the galls, others on them. Due to their microscopic size, the mites can travel long distances by wind.

All samples submitted so far would appear to be the holm oak felt gall mite, *Aceria ilicis* (aka *Eriophyes ilicis*) which, as the common name suggests, is usually found on *Quercus ilex*, but is also recorded on *Q. coccifera*, *Q. macrolepis*, *Q. rotundifolia*, & *Q. suber*. As the name also suggests the gall formed from distorted leaf tissue has a hairy covering, usually on the underside of the leaf (Figure 2). There are only records of one other oak gall mite in the UK; *Acaricalus cristatus* (aka *Epitremus cristatus*), which causes rolled leaf edges on other oak species. Be aware

that there are many other insects which also cause galling on oaks. Submit samples and photos to the laboratory for further identification or confirmation.

## Gall Mite Management

Gall mites are generally regarded as an aesthetic issue. Direct control of gall mites is difficult, due to the miniscule size of the mites and, often, protection within the gall.

Heavy infestations of gall mites may reflect stress in the host plant; if heavy infestations are present, survey the tree for other biotic and abiotic stresses and apply plant healthcare practices as appropriate to increase vitality.

If action is required then spray the trees with a broad-spectrum insecticide and oil. However, results cannot be guaranteed. Also, with any treatment applied the current damage to foliage will not heal, which is especially relevant to evergreen species such as *Q. ilex*.

## Oak Leaf Blister Fungus



Figure 3: Oak leaf blister fungus. Symptoms on lower leaf surface.

Oak leaf blister fungus (*Taphrina caerulescens*), also known as the Tongue Fungus, affects around 50 different species of oak globally.

Oak leaf blister fungus has been recorded occasionally in the UK for many years on *Q. robur* and *Q. petraea*. Around 2003 it was recorded on southern *Q. rubra* and later appeared to have spread to *Q. ilex* in 2007.

Blisters appear on the foliage in early summer, scattered over the upper leaf surface. They turn from yellow to reddish-brown with pale yellow margins, to dull brown with age. Several blisters may merge and cause entire leaves to curl. The underside becomes grey as the fungus grows (Figure 3) but this may not be so obvious in early infections.

Heavy infections of oak leaf blister fungus can impair the appearance of a tree, but research to date indicates repeated and prolonged infection does not necessarily endanger tree health.

The fungus overwinters on twigs and bud scales, and infects new leaves via the stomata as they are emerging. Fungal development is favoured by cool wet spring weather conditions which enhance spore germination on young leaves. If these conditions prevail, severe infection can occur. If weather conditions are not favourable for spore germination, only minor infection will occur. As leaves mature, they become more resistant to infection.

## Fungus Management

Trident applications may help control the fungus. Improving tree vitality by watering, mulching and fertilising with phosphite based fertilisers can reduce the degree of blister severity. Cultural methods of control include collection and disposal/burning of leaves.

Keep in mind that the damage will not heal on the current leaves but further infections should be reduced by treatment.



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