



Galls and Rusts Made by Eriophyid Mites

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Introduction

Eriophyid mites are tiny plant-feeding arthropods only distantly related to insects. They are shaped like elongated spindles broad at the head and tapering to the tip of the abdomen (Fig. 1). Depending on the species, they have two or four pairs of legs near the head.

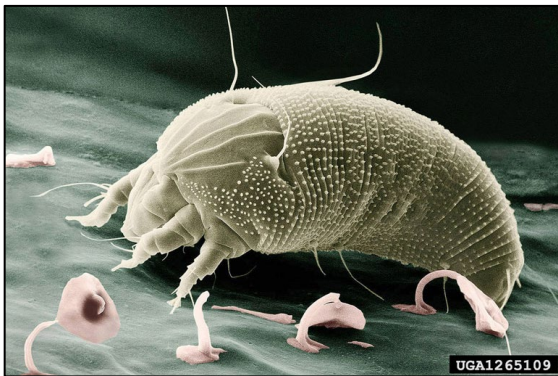


Figure 1. A scanning electron microscope image of an eriophyid mite (Eric Erbe, USDA ARS, Bugwood.org).

Damage

Many eriophyid mites live freely in plant buds or on the surface of leaves and do not produce galls. Other eriophyid mites release growth-regulating chemicals as they feed, causing adjacent plant tissues to distort and form a gall. The mites feed and develop within the relative security of the gall structure. Eriophyid mite galls range in complexity in size and shape from relatively simple blister galls to witches' brooms.

Some free-living eriophyid mites produce the plant damage known as “rust” as they feed. These mites remove the contents of plant cells

through their mouthparts, leaving a light-colored stippling across the surface of the plant tissue. As feeding damage increases with time, the foliage yellows and develops a rusty-brown or sometimes bleached appearance. Rusts produced by mites are not the same as rust diseases produced by fungal pathogens.

Erineum Growths

Erineum growths are dense, velvety patches of fine plant hairs on leaves. Erineum growths on maple are sometimes red (Fig. 2), while those on alder, beech, and poplar are tan or brown. These growths may be mistaken for a foliar disease.



Figure 2. Crimson erineum mite, *Aceria elongata* (Hodgkiss), on maple (Ronald S. Kelley, Vermont Dept. of Forests, Parks, and Recreation, Bugwood.org).

Blister Galls

Blister galls are irregular, scabby swellings on leaves (Fig. 3) Walnut and butternut are especially susceptible hosts. Pearleaf blister mite is found on both pear and apple leaves.



Figure 3. Appleleaf blister mite, *Eriophyes mali* Nalepa (Whitney Cranshaw, Colorado State University, Bugwood.org).

Leaf Roll Galls

Leaf roll galls can be seen on pecan. The mites live within the narrowly folded, thickened plant tissue along the leaf edges (Fig. 4). The galls cause the edges of the leaf to roll up and turn brown, but this does not usually lead to defoliation and trees outgrow the damage.



Figure 4. Leaf roll gall made by mites along the lower leaf edge (Eric Day, Virginia Tech, Bugwood.org).

Witches' Brooms

Witches' brooms are messy clusters of dense, deformed twig growth produced by eriophyid mites in association with a plant pathogen (Fig. 5). They can resemble bird nests when small. Witches' brooms can also be produced by other factors, such as pathogens, nutritional deficiencies, or parasitic plants.



Figure 5. A hackberry witches' broom (Whitney Cranshaw, Colorado State University, Bugwood.org).

Rose rosette disease is one example of a witches' broom produced by eriophyid mites that vector a plant virus (Fig. 6). For more information about managing this disfiguring condition in roses, see the VCE factsheet [Rose rosette disease](#).



Figure 6. Rose rosette disease (Mary Ann Hansen, Virginia Tech, Bugwood.org).

Spindle and Bladder Galls

These galls contain many mites living together. The galls are green when young but turn pink or red as they age. Spindle galls are narrow, tall, upright growths that occur on maple and other plant hosts (Fig. 7). Bladder galls are small, rounded structures that occur on red and silver maples (Fig. 8). Eriophyid mites produce other pouch-like galls as well.



Figure 7. Linden gall mite, *Eriophyes tiliae* (Pagenstecher) (Milan Zubrik, Forest Research Institute Slovakia, Bugwood.org).



Figure 8. Maple bladder gall mite, *Vasates quadripedes* Shimer (Ronald S. Kelley, Vermont Dept. of Forests, Parks, and Rec, Bugwood.org).

Rusts

Some mites that produce rusts (Fig. 9) are serious ornamental pests, such as the privet rust mite (*Aculus ligustri*), hemlock rust mite (*Nalepella tsugifoliae*), and the juniper bud mite (*Trisetacus juniperinus*).



Figure 9. Rust mite damage on bald cypress foliage (Lorraine Graney, Bartlett Tree Experts, Bugwood.org).

Control

Fortunately, most plant galls are not particularly injurious or of economic importance. Most plants can support large numbers of galls and continue to grow normally without any intervention. However, rusts can be a serious condition on the host plants. Consult your [local Cooperative Extension office](#) for help with gall identification and treatment recommendations.

Controlling eriophyid mites can be difficult. Insecticidal soaps, neem oil, and horticultural oils are suggested for mite control, but these treatments must be applied against the free-living adult stages as the eggs and immatures are generally protected by the gall structures. Mite activity should be monitored to determine when the adult stages are present and active in the spring before applications are made. Monitoring can be problematic given the small size of the mites and the sporadic nature of their damage. Adult mites may no longer be present by the time gall formation attracts attention. In addition, any treatment applied after the galls have already formed on a plant will not eliminate the distorted plant growth even if the mites are killed. One suggestion for homeowners is to prune out and destroy heavily galled portions of the plant if feasible, which may reduce the numbers of developing eriophyid mites for the current and upcoming seasons.

Revised

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