



## Yellow mite, *Polyphagotarsonemus latus* and its management in chilli

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The broad mite, *Polyphagotarsonemus latus* was first described by Banks (1904) as *Tarsonemus latus* from the terminal buds of mango in a greenhouse in USA. It belongs to the phytophagous mite family Tarsonemidae. This species has a large host range world-wide. It is a polyphagous pest widely distributed throughout the tropics and sub tropics and is known by a number of common names. It is found in Australia, Asia, Africa, Europe, North America, South America and the Pacific Islands. In India it is called the “yellow tea mite,” while those in Bangladesh call it the “yellow jute mite.” In some European countries it is called the “broad spider.” In parts of South America it is called the “tropical mite” or the “broad rust mite.

### Marks of identifications of the mite :

**Eggs :** The eggs are colorless, translucent and elliptical in shape. They are about 0.08 mm long and are covered with 29 to 37 scattered white tufts on the upper surface.

**Larvae:** Young broad mites have only three pairs of legs. They are slow moving and appear whitish due to minute ridges on the skin. As they grow they range in size from 0.1 to 0.2 mm long. The quiescent stage appears as an immobile, engorged larva.

**Nymph:** After one day, the larva becomes a quiescent nymph that is clear and pointed at both ends. The nymphal stage lasts about a day. Nymphs are usually found in depressions on the fruit, although female nymphs are often carried about by males.

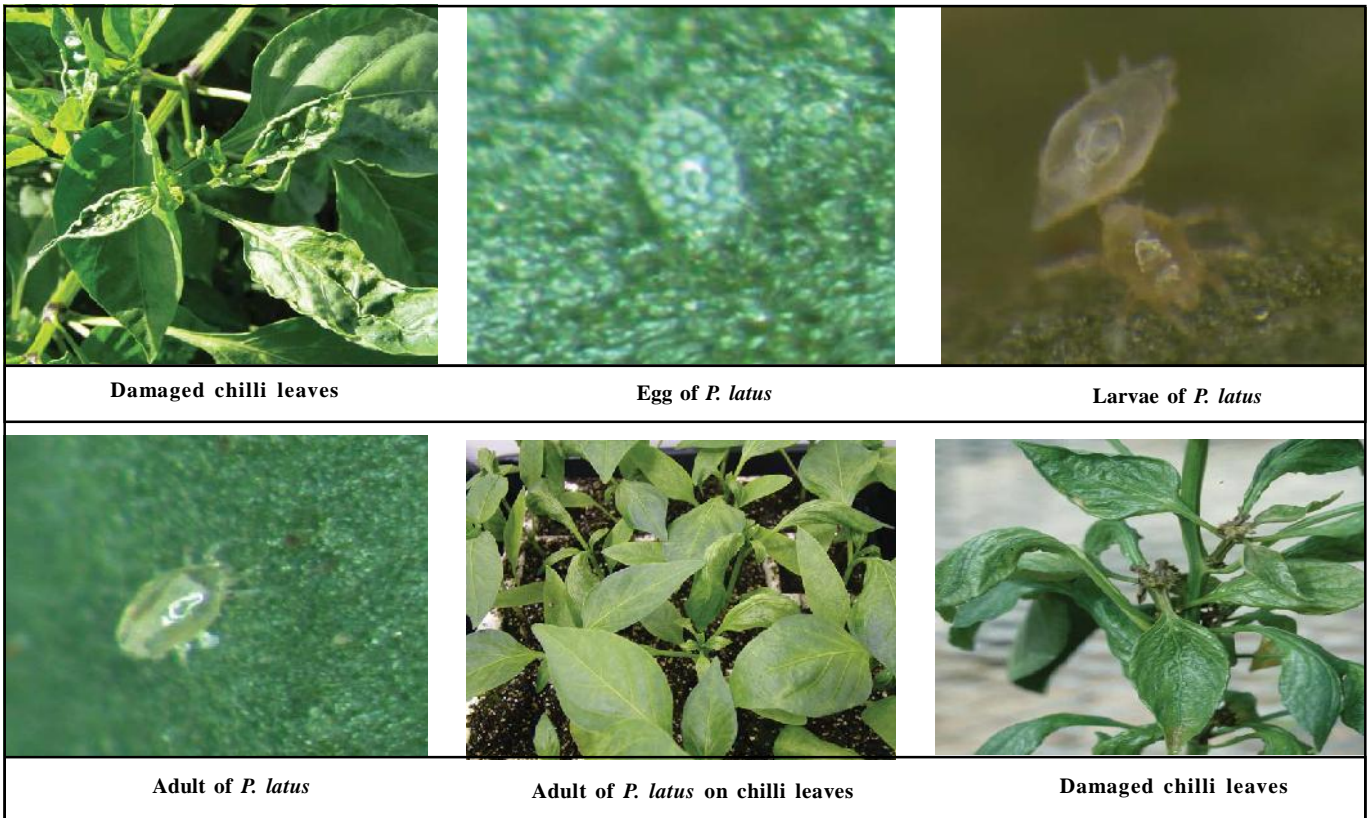
**Adults:** Female mites are about 0.2 mm long and oval in outline. Their bodies are swollen in profile and a light yellow to amber or green in colour with an indistinct, light, median stripe that fork near the back end of the body. Males are similar in colour but lack the stripe. The two hind legs of the adult females are reduced to whip-like appendages. The male is smaller (0.11 mm) and faster moving than the female. The male's enlarged hind legs are used to pick up the female nymph and place her at right angles to the male's body for later mating. In the male, the body is short and oval. It is broadest at mid-length. The legs are long and spindly. Apodemes (chitinous in growth to which muscles are attached) are distinct and well defined. Propodosoma has four pairs of dorsal setae. Capitulum, including palpi, is 32 $\mu$  long and 34 $\mu$  wide. Leg IV is 1.5

times as long as the coxa. The coxa is rectangular and as broad as long, 2/3 as long as femur III and with 1 stout seta. Genital papilla are 24 $\mu$  long and 28 $\mu$  wide and are subcircular with posterior margin truncate. The anal plate is large and well defined. Triadial apodemes have an expanse equal to 2/3 greatest width of genital papilla.

**Biology :** The broad mite has four stages in its life cycle: egg, larva, nymph and adult. Adult females lay 30 to 76 eggs (averaging five per day) on the undersides of leaf surface and in the depressions of small fruit over an eight-to 13-day period and then die. Adult males may live five to nine days. While unmated females lay male eggs, mated females usually lay four female eggs for every male egg. The eggs hatch in two or three days and the larvae emerge from the egg shell to feed. Larvae are slow moving and do not disperse far. After two or three days, the larvae develop into a quiescent larval (nymph) stage. Quiescent female larvae become attractive to the males which pick them up and carry them to the new foliage. Males and females are very active, but the males apparently account for much of the dispersal of a broad mite population in their frenzy to carry the quiescent female larvae to new leaves. When females emerge from the quiescent stage, males immediately mate with them. There are also reports of the broad mite using insect hosts, specifically some whiteflies species, to move from plant to plant.

**Hosts :** The broad mite has a wide host range in tropical areas while, it attacks greenhouse plants in temperate and subtropical regions. Food crops listed as hosts include: apple, avocado, castor, chili, citrus, coffee, cotton, eggplant, grapes, guava, jute, papaya, passion fruit, pear, potato, sesame, pole beans, mango, tea, tomato. Broad mites infest many ornamentals, including begonia, chrysanthemums, cyclamen, dahlia, gerbera, gloxinia, ivy, jasmine, impatiens, lantana, marigold and zinnia.

**Economic importance:** This destructive pest causes terminal leaves and flower buds to become malformed. The mite's toxic saliva causes twisted, hardened and distorted growth in the terminal of the plant. Mites are usually seen on the newest leaves and small fruit. Leaves turn downward and turn coppery or purplish. Internodes shorten and the lateral buds break more than normal. The



blooms abort and plant growth is stunted when large populations are present. On fruit trees the damage is usually seen on the shaded side of the fruit, so it is not readily apparent. Fruit is discolored by feeding and in severe cases premature fruit drop may occur. Severely damage fruit is not salable in the fresh market but may be used for processing. The peak activity of pest is noticed in main field from October to November which coincides the dry humid weather. In chilli the mite attack symptoms are downward curling and crinkling of leaves giving an *inverted boat shaped* appearance, elongation of Petiole *i.e.* rat tail symptom, stunted growth, on fruit scaring is very common with reduced fruit size.

**Management of *P. latus* in Chilli:**

*Cultural practice:*

- Growing tolerant varieties like Guntur types
- Management of nutrients and water will also helps in reducing the mite population.

*Biological control:* Conservation of potential predator *Amblyseius ovalis* in chilli ecosystem.

*Chemical control:* Spraying of Fenazaquin 10 EC @ 2 ml/lit or Vertimec 1.9 EC @ 0.2 ml/lit or Wetable sulphur @ 3 g/lit for management of mites. Spray phasalone 3ml/ liter (Severe conditions) of water is also suggested.

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