

ANYSTID MITE: CITRUS THRIPS PREDATOR

A. R. MOSTAFA · PAUL DeBACH · T. W. FISHER

The bright red, large mite, *A. agilis* (see photo), is often found hunting for prey on foliage. This mite is a remarkably fast and erratic runner and is difficult to capture because it moves in a whirling pattern. If disturbed while feeding, it runs off holding the prey securely between its mouth parts. On several occasions the mite has been observed carrying a citrus thrips, with its chelicera embedded in the thrips' body and sucking out the fluid. At times the predator has been observed resting at the fruit button, a site where citrus thrips tend to congregate.

This anystid mite appears in citrus groves in the spring; frequently it is seen feeding on citrus thrips, but only occasionally on citrus red mites or aphids. These predaceous mites easily survive the summer heat of southern California. In early fall they can be found in fair numbers in those plots with substantial thrips populations, but they are not readily found in similar, adjacent plots without thrips, even though such plots may have high concentrations of citrus red mites. This observation suggests that *A. agilis* may prefer a diet of thrips to a diet of citrus red mites. In fact, the cyclic disappearance of the anystid mites from the groves (January–March) coincides with the seasonal disappearance of the active stages of citrus thrips (the thrips overwinter in the egg stage). This is in sharp contrast to the citrus red mite population peak of midwinter.

Besides *A. agilis* there is another related, but obviously distinct, species (Anystidae: Erythracarinae) to be found in southern California citrus groves. This latter species is a darker, dirt-colored mite, more elongated than *A. agilis*, with a white patch behind the dorsal red eye on each side of its propodosoma. It also moves rapidly in a whirling pattern, but is found on the open ground between the trees and has never been observed on the foliage. Although its feeding habits are as yet unknown, it is probably predaceous, as are the other documented members of the family Anystidae.

More than twenty specimens representing all active stages of *A. agilis* were collected from the field between April and December. Each specimen was confined individually in a petri dish at 72–75°F

An anystid mite, *Anystis agilis* (Banks) (Acarine: Anystidae) has been observed feeding on larval and adult citrus thrips, *Scirtothrips citri* (Moulton) in orange groves in Riverside and Ventura counties. The mite has also been known to prey upon aphids and citrus red mites. This observation is important because citrus thrips is one of the two or three most important citrus pests in California, yet very little is known about its natural control. Since the population density of the citrus thrips varies widely from year to year and between different groves in the same year, natural factors not yet understood are operating to produce these observed fluctuations. Thus, this new observation of *A. agilis* as a predator of citrus thrips is of considerable interest.

and provided with either citrus thrips or citrus red mites. Although there were only a limited number of both sexes, most flourished in the laboratory; individual mites survived from 5–45 days. Several of those females maintained on citrus thrips laid clusters of 30–36 eggs (see photo), while those fed only citrus red mites did not lay any eggs. The eggs are dark orange, spherical, rough-surfaced; the clusters were firmly attached to the substrate. None of the eggs hatched, perhaps due to physiological or environmental factors. Or perhaps, as was suggested by Dr. I. M. Newell (personal communication), the failure to hatch could be explained by the eggs entering diapause.

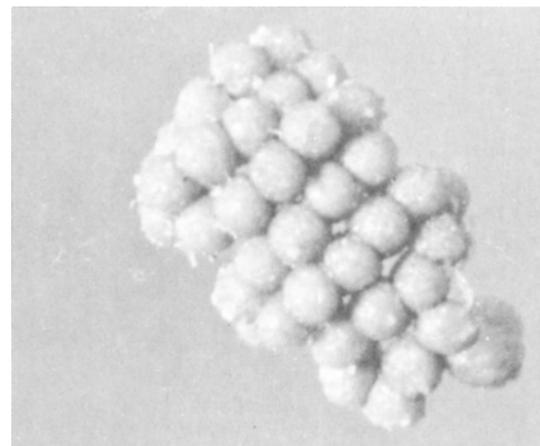
Adult *A. agilis* thrive when provided with a source of free moisture. On many occasions the senior author saw mites seek out newly introduced droplets of water and drink, with obvious pumping movement of their guts.

Provided with food and water, *A. agilis* can be readily maintained in the laboratory. Further studies should be carried out, therefore, on the biological and ecological aspects of this mite, to determine if there is a possibility for mass rearing of *A. agilis* as a natural control agent of citrus thrips.

A. R. Mostafa is Assistant Research Entomologist, Paul DeBach is Professor, and T. W. Fisher is Specialist, with the Department of Entomology, Division of Biological Control, University of California, Riverside. Drs. I. M. Newell, W. H. Ewart, and J. A. McMurtry of the University of California, Riverside, critically reviewed the manuscript; Drs. F. M. Summers of the University of California, Davis, and Edward W. Baker of the USDA, ARS helped in identifying the mites; and M. E. Badgley of the University of California, Riverside, took the mite

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An egg cluster of *Anystis agilis*.



Anystis Agilis adult female, center; citrus thrips adult female, upper left-hand corner.

