Amblyseius sp. (Phytoseiidae), a predaceous mite of the rice gall mide, *Orseolia oryzae*, in Thailand

Rice gall midge, *Orseolia oryzae*, is distributed as a polyvoltine rice insect pest in Burma, Sri Lanka, the People's Republic of China, India, Indonesia, Nigeria, Cameroons, Sudan, Thailand and Vietnam (Reddy, 1967). Some hymenopterous parasites, such as *Platygaster oryzae*, have been reported as natural enemies of this insect pest (Reddy, 1967; Hidaka, 1974; Hidaka et al., 1974). But so far there has been no record of predaceous mite feeding on the rice gall midge.

The authors have been conducting investigations on population dynamics of the rice gall midge and its natural enemies at the Phan Rice Experiment Station in Chiangrai Province of Thailand since December, 1972. In the course of the study, one of the authors, Kobayashi, found out that a female adult of *Amblyseius* sp. was feeding on an egg of the midge on a rice leaf blade at Pafeak, Chiangrai Province on August 29, 1973. After that, the feeding behavior of the mite has often been observed in fields, and also it was confirmed experimentally.

The egg of *Amblyseius* sp. is milky white and round in shape, measuring 0.175 mm in diameter. It is usually deposited singly on the upper surface of the leaf blade of rice plants. The nymph is also milky white, about 0.194 mm long. The female adult is milky white or yellowish white, varying from 0.389 to 0.458 mm long, as shown in Plate 1. The male adult, yellowish white in color, is rather small compared with the female; from 0.292 to 0.316 mm long. The body color of this predator, however, shows temporarily the color of the prey on which it feeds, because the color of the prey can be seen through the body of the predator immediately after feeding.

The predaceous mites inhabit usually in the slit between leaf blade and ligule in a group or singly, although prey-searching individuals are found on the surface of the leaf blades of the rice plants.

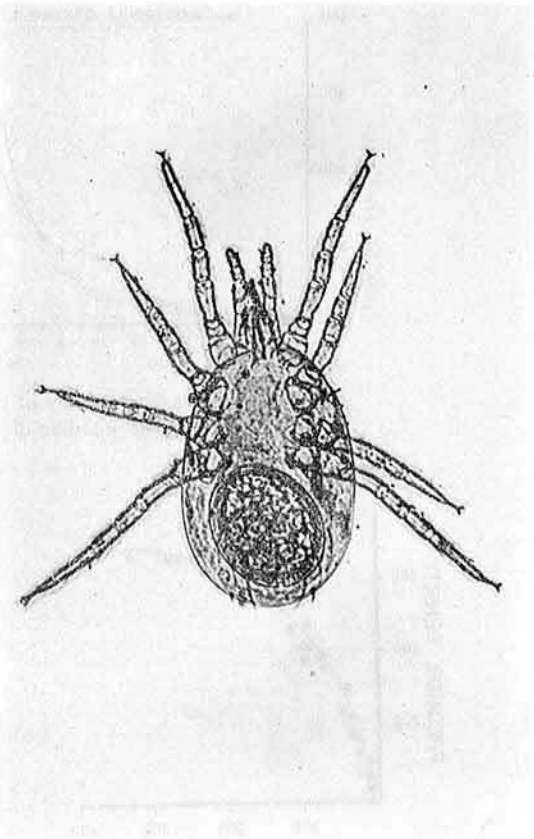

Plate 1. Ventral view of female of *Amblyseius* sp.

The investigations of both prey and predator population densities were conducted at a paddy field of the Phan Rice Experiment Station by following methods.

The paddy field of 800 sq m was divided equally into 50 quadrats of 4 sq m. And a total of 50 hills of the rice plant were taken from each quadrat at three or four days intervals. These samples collected at the paddy field were brought to the laboratory for examination under binocular microscope and the eggs of *Orseolia oryzae* and the individuals of *Amblyseius* sp. including the nymph on the leaves were counted. The rice variety used was Dawk Mali 3.

As seen in Fig. 1, the number of gall midge

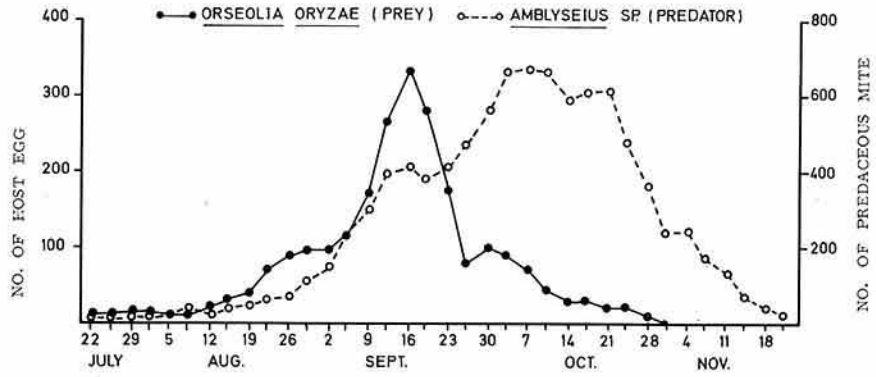

Fig. 1. Seasonal trends of the number of eggs of *Orseolia oryzae* and the number of *Amblyseius* sp. per 50 hills in 1974.

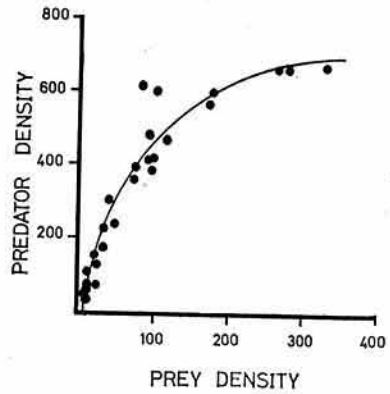

Fig. 2. Relation between the density of eggs of *Orseolia oryzae* and the density of *Amblyseius* sp. per 50 hills in 1974. (For details, see text.)

eggs began to increase gradually in mid-August and then a sharp increase took place until reaching a peak in mid-September. The number then decreased rapidly. On the other hand, the number of *Amblyseius* sp. began to increase slowly from late August and showed a sharp increase up to the end of September, reaching the peak in early October. Thus, seasonal trends of the densities both of the prey and the predator showed almost the same patterns but population changes in the predator were behind that of the prey by about 3 weeks.

To confirm this prey-predator relation in population change, population densities of the predator counted at 3 weeks late were plotted against the population densities of the prey. As shown in Fig. 2, both population densities coincide very well each other. Thus, it is clear that population density of the predaceous mite follows the changes of the population density of the rice gall midge eggs with a time lag of 3 weeks.

The facts mentioned above seem to suggest a high potentiality of *Amblyseius* sp. as an important biotic factor for controlling the rice gall midge population.

Further studies on this predaceous mite are now in progress, and result of the study will be presented later.

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