

Sublethal Effects of Thiamethoxam-Lambda Cyhalothrin on the Life Table Parameters and Population Projection of *Trialeurodes vaporariorum* (Hemiptera: Aleyrodidae) and Its Parasitoid, *Encarsia formosa* (Hymenoptera: Aphelinidae)

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Abstract : The greenhouse whitefly, *Trialeurodes vaporariorum* Westwood (Hemiptera: Aleyrodidae), is one of the most important pest on vegetables and ornamental host plants. In this research, the sub-lethal concentration (LC30) of thiamethoxam-lambda cyhalothrin (TLC) on the biological properties, life table parameters and population projection of *T. vaporarium* and its parasitoid, *Encarsia formosa* Gahan, were studied at controlled condition (25 ± 5 °C, R.H. 60 ± 10 % and a photoperiod of 16:8 h (L:D). Bioassays were conducted by dipping tomato leaves containing third instar nymphs of the whitefly *T. vaporarium*, in the obtained LC30 concentration of eforia. The life table data were analyzed using the computer program TWSEX-MSChart based on the age-stage, two-sex life table theory. The results showed that, usage of sublethal concentration of TLC effected the biological properties and population growth parameters of greenhouse whitefly by shortening the developmentl time, adult longevity, decreasing the fecundity and population growth paramters. Also, the LC30 concentration of TLC had negative effects on life history and life table parameters of *E.formosa*. The obtained results illustrated that the sublethal concentration of TLC resulted in prolonging of developmental time, decreasing of adult longevity, survival rate and population growth parameters of *E.formosa*. Additionally, the population projection results were accordance with the population growth rate of either greenhouse whitefly or *E.formosa*. We conclude that, TLC should not be used in integrated pest management programs where *E. formosa* exists.

Keywords : greenhouse whitefly, *Encarsia formosa*, thiamethoxam-lambda cyhalothrin, population projection, life table parameters

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