Influence of Temperature on the Life History of Smaller Brown Planthopper, *Laodelphax striatellus*, Fallen

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Abstract

Smaller brown planthopper (*Laodelphax striatellus*, Fallen) abbreviated as SBPH occurs in the paddy fields of all rice cultivated areas in Taiwan and has become an important insect pest of rice since last decade. Besides direct damage by sucking the juice from rice plants and the insect also transmit the rice stripe disease indirectly causing damage to rice production. Present study is aimed to investigate the influence of temperature on the life history of the pest. The tested SBPH was derived from the stock culture of the insect maintained in Kaohsiung District Agricultural Improvement Station and the seedlings of Tainung 67 was used as feeding material. Twenty pairs of adult SBPH and 40 individuals of nymphs each were subjected to the constant temperature of 20, 25, and 30℃. The results of experiment were summarized as follows:

The averaged life span of adult SBPH at 20, 25 and 30℃ lasted 30.2, 23.37 and 18.8 days, respectively. During the period, a female laid 146.04 eggs at 20℃, 186.17 eggs at 25℃ and 71.75 eggs at 30℃. The averaged duration for egg development at 20, 25 and 30℃ were 14 02, 8.84 and 5.65 days respectively.

The nymph under-gone four-time molts, the fifth instar nymph took a long time for development than the others. The duration of nymphal stage averaged 29.13 days at 20℃, 19.29 days at 25℃ and 18.22 days at 30℃. The fecundity of adults between macropterous and brachypterous form was

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not different significantly. More than 70 percent nymphs could survive to adult insect when they were caged on the seedlings of *Echinochlea crus-galli, Echinochlea colorum, Sorghum bicolon and Triticum aestivum*. In the field conditions, SBPH tend to inhabit on the upper part of rice plants toward nightfall, since more number of the insect could be caught by sweep net during this period .

Key words: Temperature, Life history ,Laodelphax striatellus