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# Study on biology of the poplar leaf beetle, *Chrysomela populi* in the laboratory and poplar plantation

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**ABSTRACT**

Adults and larvae of the poplar leaf beetle are among the most severe pests of poplar plantations. In order to study development and reproduction of *Chrysomela populi* under laboratory conditions (T = 25 ± 1 °C; R. H. = 70 ± 10%; Photoperiod (L:D) 16:8 h) pairs of overwintering adults were separately confined in a plastic container provided by fresh leaves of *Populus nigra*. Longevity of females and males were 27.4 and 43.4 days, respectively. Total number of eggs/female, number of eggs/batch and oviposition rate (eggs/female/day) averaged 415.6, 40.7 and 23.9, respectively. Developmental times of egg, three larval stages and prepupa and pupa were 4.9, 3.4, 3.5, 5.2, 1.6 and 3.5 days, respectively. Stage specific mortality was as egg > 1st instar > 2nd instar > 3rd instar > pupa > prepupa. In a poplar plantation near Neyshabour (Northeast of Iran), overwintering adults appeared in early April, fed on fresh leaves, copulated and started to lay their eggs two weeks later. First instar larvae appeared in late April. After spending three larval stages, prepupa and pupa, newly moulted adults emerged in late May. They fed on poplar leaves for a few days then left the trees to start their long diapause period within litter and grasses until the next spring. Thus, *C. populi* has one generation a year in the studied region. Data from the field were subjected to the Popsys 1f software, using Kiritani-Nakasuji-Manly (KNM) model. Estimations of duration of different immature stages were: 4.32, 5.85, 4.15, 6.21 and 2.95 days for egg, three larval instars and pupa (including prepupa), respectively. The survival rates for the respective stages were 0.44, 0.33, 0.45, 0.31 and 0.57. Estimations of the model were compared with the findings of laboratory and nursery.

**Key words:** *Chrysomela populi*, *Populus nigra*, biology, stage-frequency, Neyshabour (Iran).

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