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Research Paper

GENETIC ASSESSMENT OF RESISTANCE TO GRASSERIE IN SILKWORM (*BOMBYX MORI* L.) THROUGH GENERATION MEANS ANALYSIS

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ABSTRACT

Grasserie, known as a destructive and fatal disease in silkworm, is caused by infection of nuclear polyhedrosis virus. In the current study, in order to evaluate genetic resistance of silkworm (lines 154 and 104) to grasserie, virus inoculation in various generations [*i.e.*, parental (P1 and P2), first filial (F1), second filial (F2), direct and reverse back crosses (BC1, BC2, RBC1 and RBC2 generations)] was performed. Collected data were analyzed through generation mean analysis method and by applying joint scaling test. Results indicated that besides additive and dominant gene effects, additive-additive epistatic gene effect influences the genetic resistance of silkworms to grasserie. Dominance ratio of the studied trait indicated that resistance to grasserie is controlled by over dominance gene action. Heritability of the trait, resistance to grasserie, was variable from a low to medium degree. Also, the minimum effective gene number was estimated from 0.8 to 6.5, for this trait. The results indicate the importance of dominance gene effects and therefore, suggests the prospects of applying cross breeding strategy for genetic improvement of resistance to nuclear polyhydrosis virus in silkworm.

Key words: Generation mean analysis, grasserie, resistance, silkworm.