

研究论文

学习经历在平腹小蜂寄主选择过程中的作用

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摘要 研究了已经交配与未经交配的平腹小蜂在羽化后不同时间对中间寄主柞蚕卵信息记忆的持效性, 比较了经学习训练与未经学习训练的平腹小蜂在不同时间对其自然寄主荔枝蜡卵和中间寄主柞蚕卵的选择性。结果表明: 交配过的平腹小蜂在大量羽化后96h检验柞蚕卵的时间和数量都显著增多, 而未经交配的平腹小蜂在此时搜索寄主的时间也显著延长, 说明平腹小蜂在此时对柞蚕卵信息的记忆开始明显减弱。经学习训练的和未经学习训练的平腹小蜂在大量羽化后96h对荔枝蜡卵的第一选择数和刺卵数都明显提高, 并且前者较后者在各个时段对荔枝蜡卵的第一选择数、检验卵数以及刺卵数都多, 说明经学习训练的平腹小蜂对荔枝蜡卵的趋性较高, 并且随着时间的延长受柞蚕卵信息的干扰逐渐减小, 对荔枝蜡卵的学习效果不断增强。

关键词 [学习经历](#) [平腹小蜂](#) [寄主选择](#)

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The effects of learning experiences of *Anastatus japonicus* on its host selection process

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Abstract *Anastatus japonicus*(Ashmead) is an efficient egg parasitoid against *Tessaratomia papillosa*(Drury), a major litchi(*Litchi chinensis*)pest,in Southern China.However, the practical bio control efficacy of *A.japonicus* mass produced using middle host *Antheraea pernyi* eggs is low in field.It is known that parasitoids response to a host can be affected by the experience on host cues gained during and immediately after emergence from the host.Does the experience in middle host affect the host selection process of *A.japonicus*? If so, how long does it last? It is unknown whether experiences trained on natural host cues will improve the responses of a parasitoid raised by middle host to its natural host.In this study, first of all, we investigated the memory persistence of mated and unmated *A.japonicus* for information from middle host eggs (*Antheraea pernyi* eggs) at different times after eclosion.Secondly, we compared the selectivity of trained and untrained *A.japonicus* on natural host (*Tessaratomia papillosa* eggs) and middle host (*Antheraea pernyi* eggs) at different times post-emergence.Finally, we evaluated the searching efficiency of *A.japonicus* after learning experiences in processing *T.papillosa* egg.The results showed that the time and the amount of inspecting host eggs of mated *A.japonicus* were increased significantly after *A.japonicus* had emerged from the middle host eggs 96h later.We observed that the time for searching host eggs for unmated *A.japonicus* was also delayed remarkably, therefore the memory of *A.japonicus* for information from *A.pernyi* eggs began to weaken distinctly after 96 h.On the other hand, the number of first-selectivity for *T.papillosa* eggs and the amount of poking *T.papillosa* eggs for trained and untrained *A.japonicus* were increased obviously at 96 h after emergence.Interestingly, the number of first-selectivity for *T.papillosa* eggs and the amount of inspecting and poking *T.papillosa* eggs for trained *A.japonicus* were more than those of untrained *A. japonicus* at different times post-emergence. The results showed that trained *A. japonicus* has higher attraction to *T. papillosa* eggs compared to untrained *A. japonicus*, and the interfering information from middle host *A. pernyi* decreased gradually.

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