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New Discoveries through Consilience



Abstract Book

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[P0766] Selective foraging behavior of ladybird to aphids parasitized by parasitic wasp

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Agricultural damage caused by pests is a serious problem. Among pests, aphids cause both direct damage to plants through sucking and indirect damage through virus infection. Chemical strategies have primarily been applied against these pests, but the overuse of insecticides allowed pests to acquire chemical resistances. Hence, there is growing interest in utilizing natural enemies (biological control agent) rather than agrochemicals in recent years. Typical natural enemies against aphids include Harmonia axyridis (predator) and Aphidius colemani (parasite). H. axyridis has a high control efficacy per stock of each crop compared to A. colemani, but because it cannot fly. On the other hand, A. colemani with flying ability can be applied to a wide range. This means that the combined usage of both species with different traits may lead to a complementary benefit for more effective pest managements. However, it is possible that if *H. axyridis* preyed on aphids that are parasitized by *A. colemani*, control efficacy would be reduced. Nevertheless, understanding of the predation behaviors of *H. axyridis* against aphids parasitized by A. colemani is scarce. To elucidate the conditions under which H. axyridis does not prey on parasitized aphids, we investigated their predatory behavior towards aphids. Our study focused on the growth of A. colemani larvae inside the host body and changes in the host's body color. The results of this investigation are presented here. In particular, we focused on the larval development of A. colemani within aphids (host) and changes in the body color of hosts with time after parasitism. Aphids that were parasitized by A. colemani were categorized into three stages based on the appearance of A. colemani larvae inside the body and body color of hosts. H. axyridis preyed equally on nonparasitized aphids and parasitized aphids without discoloration. In contrast, *H. axyridis* selectively preyed not on