

Intraspecific host choice and suitability in the solitary koinobiont parasitoid *Eadya paropsidis* Huddleston & Short (Hymenoptera: Braconidae): Bigger hosts are not necessarily better

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Although host stage selection in koinobiont endoparasitoids is frequently measured, the mechanisms that underlie parasitoid oviposition preferences are often overlooked. Here, we determine the preferred host stage of the braconid wasp *Eadya paropsidis* when attacking the leaf beetle *Paropsisterna* (= *Chrysophtharta*) *agricola* Chapuis (Coleoptera: Chrysomelidae) in the field and laboratory, and examine how behavioural and developmental interactions may be mediating host stage preferences and parasitoid reproductive fitness. In field choice tests, *E. paropsidis* parasitised significantly more small hosts than large, and in laboratory tests, deposited 30% more eggs into first instars than any other instar. Parasitism doubled the probability of premature host death across all instars, though the host's internal ability to kill a developing parasitoid larva did not vary with host instar. Multiple ovipositor insertions by the wasp reduced the chances of the host beetle surviving parasitism by 2.5 fold for every additional insertion, but did not significantly increase host mortality. Oviposition took twice as long and attempts were only half as successful with large hosts compared to small. Larger hosts were over three times more likely to tail flick and 27 times more likely to walk away from the attacking parasitoid than small hosts. Parasitoid larval weights were higher for those individuals originating from first instar hosts with parasitoid development taking significantly longer from first instars. We found no fitness advantage for *E. paropsidis* in attacking larger hosts, and apart from a taking slightly longer to develop from first instars, small hosts offered the best potential for the parasitoid to maximise fitness via increased body size and reduced host handling time.

