

trees may represent a risk for the citizens' health. To date there is not a defined control strategy, but manifold methodologies and products are still under evaluation. An aspect that is arousing the interest of the scientific community is the biological control carried out by natural enemies, such as predators or parasitoids. In Europe, to date, there are no indications about predators and/or parasitoids that could be effective. This work aims to fill this gap of knowledge: we have planned different experiments about predation activity, fecundity and longevity of some predator species using *T. parvicornis* as a prey. More specifically, we focused on a predator belonging to Coccinellidae: the ladybird species *Exochomus quadripustulatus* (Linnaeus, 1758) (Hemiptera: Coccoidea). Under controlled laboratory conditions of $25\pm 2^\circ\text{C}$, $65\pm 10\%$ r.h. and a photoperiod of 16L:8D we have evaluated the predation behaviour, the fecundity and the longevity of the larval and adult life stages of *E. quadripustulatus* active on *T. parvicornis* preys. Measurements on the ladybird individuals consisted in reporting, every 24-48h, the weight, the size, and the number of eggs laid by the individuals. The outputs of this research lay the foundations of a further trial in a semi-field and/or open field context

Keywords: pine tortoise scale, stone pine, pine ladybirds beetle, biocontrol, IPM

Can rearing *Sclerodermus brevicornis* (Hymenoptera: Bethyridae) on a factitious host affect behavior?

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Wasps in the genus *Sclerodermus* are quasi-social ectoparasitoids that typically attack coleopteran larvae that live inside the wood. Interest in these species is increasing as they are used in programs to control wood boring longhorn beetles of economic importance in China and could also be used in Europe. However, the mass rearing systems are affected by the host used to produce new offspring and rearing *Sclerodermus* on its natural hosts is time consuming and physically demanding. There is thus a need for factitious hosts with lower production costs and that are easier to rear. The present research focuses on *Sclerodermus brevicornis* which was found in association with *Psacothea hilaris hilaris* and can be reared on both this longhorn beetle and on a factitious lepidopteran host, *Corcyra cephalonica*. As it is known that the biology of natural enemies can be influenced by the host they emerge from, and

that the behaviour of *S. brevicornis* is quite complex due to its degree of sociality (multiple females cooperate to paralyze the host and produce offspring communally), we explored whether and how performance and behavioural traits are influenced by the rearing host. Choice tests were set up using parasitoids with different origins (the host species they emerged from) when offered different host species. Aspects of parasitoid performance, the timing of development, movements between hosts and aggregation on hosts were evaluated. Significant effects were not detected in timing and performance but were found in the number of movements and in aggregation behaviour. As a preliminary conclusion, this research indicates that the overall success of *S. brevicornis* is not influenced by the host of origin, even if some aspects of its relatively complex social behaviours may be.

Keywords: quasi social, choice test, mass rearing, biological control, performance