

DIVERGENCE IN HOST RANGE AND REPRODUCTIVE COMPATIBILITY IN THREE STRAINS OF *OLIGONYCHUS GOTOHI* EHARA (ACARI: TETRANYCHIDAE)

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ABSTRACT - Preliminary observations indicated that *Oligonychus gotohi* Ehara collected from deciduous chestnut (deciduous-tree strain) could not develop on leaves of the evergreen broad-leaved tree *Lithocarpus edulis* (Makino) Nakai in the laboratory. Furthermore, we found an evergreen arrhenotokous (A) strain that produces both female and male progeny and an evergreen thelytokous (T) strain that produces only female progeny. These observations suggest that *O. gotohi* consists of either host races or sibling species. To determine which is the case, we examined the above three strains on 19 fagaceous plant species. The deciduous-tree strain successfully developed and oviposited on seven deciduous trees but did not develop on evergreen trees at all. The evergreen-A strain had the narrowest host range and could develop and oviposit only on three species of deciduous trees and only on three species of evergreen trees. The evergreen-T strain grew well on six deciduous trees and on all but one of the evergreen trees. Thus, the three strains demonstrated host plant divergence. Malate dehydrogenase (MDH) zymograms among populations of the same strain were similar, but those from the different strains were clearly different. Inter-population crosses in the deciduous-tree and the evergreen-A strains were compatible, but the reciprocal crosses between the deciduous-tree and the evergreen-A strains produced no females, indicating that these two strains were reproductively isolated. Neither virgin females of the evergreen-T strain nor evergreen-T strain females crossed with males of either the deciduous-tree or the evergreen-A strain produced male offspring. Thus, *O. gotohi* contains at least three different biological entities that may be sibling species.

Key words - Acari, Tetranychidae, *Oligonychus gotohi*, thelytoky, arrhenotoky, reproductive incompatibility, host range, Fagaceae, sibling species.

Abstract # 2

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