



## Learning behavior of *Neoseiulus californicus* from astigmatid to spider mites\*

JIA-YUN ZHU<sup>1</sup>, FENG XIAO, JIAN-FENG LIU & RONG XIAO

Institute of Entomology, Guizhou University, Guizhou Provincial Key Laboratory for Agricultural Pest Management of the Mountainous Region, Guiyang, Guizhou, China

<sup>1</sup> [✉ zjy873421380@163.com](mailto:zjy873421380@163.com)

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*Oulenziella bakeri* is often used as an alternative prey for the mass rearing of *Neoseiulus californicus* in China. Long-term alternative prey feeding experience may cause a decline in the predatory capacity of phytoseiid mites toward their target prey. Learning behavior of predatory mites can help them adapt to the changes from preying on thrips to preying on spider mites (Rahmani *et al.*, 2010), but there are few studies on the learning behavior of predatory mites from astigmatid mites to spider mites. Here, we compared the attack latency, prey preference, and functional response of *N. californicus* toward *Tetranychus urticae* among the “natural prey strains” (feeding only on *T. urticae*), “alternative prey strains” (feeding only on *O. bakeri*), and “learning behavior treatment” (alternative prey strains experienced in attacking but not feeding on *T. urticae*). The results showed that the attack latency of “alternative prey strain” of *N. californicus* on *T. urticae* was significantly longer than that of “natural prey strain” and “learning behavior treatment”. The “alternative prey strain” showed no obvious predatory preference between the protonymphs of *T. urticae* and *O. bakeri*. There were no significant differences in the capture rate and handling time among the three treatments. Our results indicated that the long-term rearing on alternative prey mainly prolonged the attack latency of *N. californicus* to the target prey and changed its prey preference, while learning behavior could help alternative prey strain of *N. californicus* to shorten the attack latency and restore its prey preference toward target prey (Zhu *et al.*, 2022).

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**Key words:** predatory mite, Astigmata, *Tetranychus urticae*, learning behavior, predatory ability

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