

Article

Effect of familiarity and morphological traits on male mating precedence in *Phytoseiulus persimilis* and *Neoseiulus californicus* (Acari: Phytoseiidae)

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Abstract

Male competition to fertilize the eggs of females would result in conflicts between the members of one sex and evolution of secondary behavioral and morphological characters. Here, we have investigated the effect of familiarity and morphological traits on *Phytoseiulus persimilis* Athias- Henriot and *Neoseiulus californicus* (Oudemans) (Acari: Phytoseiidae) mating combat and precedence. Our results showed no significant difference between the number of familiar and unfamiliar *P. persimilis* / *N. californicus* males mated first. The values of ANOVA to compare the mean length of the first leg, Palp, 2nd cheliceral segment, movable digit and spermatodactyl in prevailed familiar, prevailed unfamiliar, defeated familiar, defeated unfamiliar males in male mating precedence experiment was calculated. None of the morphological characters affected the mating precedence in *N. californicus*. The length of the cheliceral segments did not affect the male mating precedence in *P. persimilis*. Tukey HSD post-hoc test for *P. persimilis* showed that both the first leg and palp were significantly longer in prevailed familiar males rather than that in defeated unfamiliar. Also a significant difference was observed between the length of the palp in prevailed familiar and unfamiliar individuals. The spermatodactyl length was significantly more in prevailed familiars in comparison with defeated ones although no significant difference between prevailed familiars and defeated unfamiliar in *P. persimilis*. The relationship between morphological characters, mating precedence and inbreeding depression is discussed.

Key words: Behavior; competition; familiarity; mating precedence; morphology.

Introduction

Male arthropods need to apply different strategies to increase their reproductive success within male-male competition. Male-male conflicts have led to an evolution of mating systems and (behavioral and morphological) adaptations in males for