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# SELECCIÓN SEXUAL EN MANTIS (PARASTAGMATOPTERA TESELLATA): EFECTOS DE LA AGRESIVIDAD DE LA HEMBRA SOBRE LA ELECCIÓN DE PAREJA DEL MACHO

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## RESUMEN

Estudios recientes han propuesto que los mántidos macho (*Parastagmatoptera tessellata*) no son cómplices del canibalismo sexual, siendo capaces de evitar a las hembras bajo condiciones que favorecen el canibalismo. Investigamos si los machos son sensibles al nivel de agresión exhibido por las hembras. 20 machos sexualmente maduros fueron confrontados individualmente con dos opciones: a) una hembra exhibiendo ataques ("hembra agresiva") cuando un macho arnesado se le acercaba, y b) una hembra que no exhibía ataques ("hembra pasiva") cuando el mismo macho se le acercaba. Resultados preliminares indican que la preferencia del macho cambia acorde al número de ataques exhibido por la hembra "agresiva" (la cantidad de ataques provocados en las hembras agresivas dependió del tiempo que el macho focal la estuvo observando). Cuando las hembras "agresivas" fueron estimuladas a realizar unos pocos ataques (=6) las hembras "pasivas" fueron preferidas. Las hembras "agresivas" fueron preferidas cuando fueron estimuladas a realizar muchos ataques (>6). Una explicación posible es que la estimulación repetida para provocar intentos de ataque genere en una primera instancia (=6) verdaderos intentos de ataque, mientras que en una segunda instancia (>6) sea percibida como una amenaza, generando movimientos de defensa que, a simple vista, se confunden con ataques.

## Palabras clave

Mantis Canibalismo Sexual Toma de decisiones

## ABSTRACT

SEXUAL SELECTION IN MANTIS  
(*PARASTAGMATOPTERA TESELLATA*): EFFECTS  
OF FEMALE AGGRESSIVENESS ON MALE MATE  
CHOICE

Recent research has proposed that male mantis (*Parastagmatoptera tessellata*) are not complicit in cannibalism and that they are able to avoid females under conditions that favors cannibalism (i.e. starvation). On these bases, we investigate whether males are sensitive to the level of aggression exhibited by females. To that end, twenty males were confronted individually with two choices: a) a female exhibiting strikes ("aggressive female") when a harnessed male is placing close to it, and b) a female who do not exhibit strikes ("passive female") when the same male is placing close to it. Preliminary results indicate that male behavior changes according

to the number of strikes exhibited by females. When the "aggressive" females performed just a few strikes (=6) the "passive" females were preferred. On the other hand, the "aggressive" females were preferred when they exhibited many strikes (>6). A possible explanation is that aggressive females were chosen when they exhibited many strikes (>6) due to a phenomenon of enhancement (when females strike, they move markedly and this could have driven male's attention to them). Thus, just a few strikes (=6) would be an effective stimulus, avoiding any enhancement of females. To test this interpretation additional experiments are in progress.

## Key words

Mantis Sexual Cannibalism Decisionmaking

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Mantises are popular because females are capable of cannibalizing males either before, during or after mating. Approximately 30% of sexual encounters begin or end in cannibalism (Lawrence, 1992), being the probability of cannibalism dependent on females' nutritional state: the better the females' nutritional state the least the chance of cannibalism (Liske & Davis, 1987). Two different hypothesis could explain male mate choice strategy. "Complicity" hypothesis states that males promote cannibalism due to the increment in their fitness as a consequence of their own consumption. Males would benefit from this strategy if the chances of mating in the future are low or null, if the certainty of paternity is high and if their value as food item allows females to rear substantially more offspring. "Conflict" hypothesis states that cannibalism only benefits females and that males' fitness would be higher if they could copulate with more than a female instead of being cannibalized.

Sexually mature focal males (n=20) were confronted individually two with choices: a virgin female which exhibited strikes when a harnessed male was placed close to it (treatment "aggressive"), and a virgin female which did not exhibit strikes when the same male was placed close to it (treatment "non aggressive"). To inhibit strikes females under "non aggressive" treatment were exposed to carbon dioxide for a few seconds. Both females were food deprived for five days prior to the experiment (to ensure strikes and to homogenise nutritional state) and were randomly assigned to each treatment. During the experimental session, the focal male was

placed in one of the corners of a triangular experimental arena, at an equal distance from the other two corners, each of which contained one of the harnessed females (the “aggressive” and the “non aggressive” females). A harnessed male was then placed close to each female sequentially: when it was placed near the aggressive female, the female performed strikes, trying to capture the male; but when it was placed near the passive female, the female did not perform any strike. After manipulation, the harnessed male was removed from the arena and the focal male was left to make its choice, which was video-recorded between four and eleven hours. As indicators of preference we analysed: 1) Time the focal male spent at each area; 2) Type of individual (treatment) chosen in the first attempt to mate.

Males showed to prefer females that did not exhibit strikes. This shows that males do not prefer females aggressiveness as a direct way of avoiding being cannibalized. The strikes would work as an indicator of female's aggression level. Visual or olfactory keys would trigger this behavior. The elucidation of mechanisms of mate choice sensitive to female's aggression levels tending to favour the choice of non aggressive females, supports the hypothesis of “conflict” between male and female, at least in the mantis species studied.

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