

## Mating Behaviour and Its Significance in Reproductive Performance of *Dysdercus koenigii*

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**Abstract :** The present research work was carried out on *Dysdercus koenigii* to understand various aspects of reproductive behavior such as mate finding and recognition, mate selection and mating preference, mating receptivity, and prolonged copulation. The studies carried out on mate searching and courtship behaviour of *Dysdercus* reflected the courtship behaviour in *Dysdercus* was brief. The opposite sexes are brought together by the pheromone. The males responded to female sex pheromones by showing directional movements toward the sex partners. Change in mating receptivity pattern of female *Dysdercus* was ascertained using three parameters of mating behaviour i.e. numbers of male's encounter, the time taken to mate successfully and per cent females responding to mating. It was seen that a receptive female responded positively to the courting males and a high percentage of females mate usually in a very short time span. The females of *Dysdercus* showed continued mating receptivity throughout their life. The studies pertaining to mate selection by females showed that females generally do not discriminate among males and usually mate with any male they encountered first. The adults of *Dysdercus* remain in continuous copula up to 72hr. and mate 5-7 time in their life span. Studies pertaining to significance of prolonged mating in the life time reproductive success of the female *Dysdercus* indicated that fecundity and fertility and oviposition behavior of the female *Dysdercus* was related to duration of mating. In order to understand sperm precedence, the sterilized males were produced by exposing them to Gamma radiation. Our studies indicated that a dose of 50 Gy of Gamma radiations induced 95% sterility but does not impair the mating behaviour drastically. To understand role of sperms which were transfer during second mating in fertilizing the subsequent egg batches the sperm utilization pattern of doubly mated female was assessed. The females were mated with normal male or sterilized male in a combination. The sperm utilization pattern was determined by P2 value, our studies indicated a very high P2 value of 0.966, and indicated that sperms of last mating were utilized by the female for fertilization. In light of some of the unique reproductive behaviour of *Dysdercus koenigii*, such as brief courtship behavior, generalized mate selection by the female, continued mating receptivity and a prolonged pre oviposition period, the present studies on sperm precedence provides an explanation to an unusually prolonged copulation in *Dysdercus*.

**Keywords :** *dysdercus koenigii*, mating behaviour, reproductive performance, entomology

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