Diel periodicity of the behavioral response of male Spodoptera littoralis to sex pheromone in the field.

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Abstract:

Responsiveness of male S. littoralis to the sex pheromone was investigated in the field in two experiments conducted in June and July, 2007. Traps baited with pheromone gland extracts were installed in a cotton field and the trap catch was collected every two hours during nighttime and every four hours during the daytime. The males exhibited an obvious diel rhythm in their attraction to the pheromone. Almost no males were trapped during daytime, considerable numbers of males were trapped during the first six hours of nighttime, and significantly larger numbers were trapped in the last four hours of nighttime. In addition to the experimental setting which controlled for many of the factors that may induce variation in trap catch, laboratory experiments were conducted to check if temporal change in eclosion rates could shape the pattern of trap catch. The diel emergence rhythm was found to be enough to account for the temporal variation in trap catch was due to inherent diel rhythm in male responsiveness to the sex pheromone, and that the rhythm may be controlled by internal clock mechanisms rather than exogenous factors. The significance of circadian behavioral response to sex pheromone in the life of S. littoralis and the practical implications of the results are discussed.

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