

# Pathogen- and diet-dependent foraging, nutritional and immune ecology in mealworms

Catalán, Tamara P.

Barceló, Matías

Niemeyer, Hermann M.

Kalergis, Alexis M.

Bozinovic, Francisco

Background: Feeding habits and dietary nutritional content may play a key role in pathogen-dependent foraging ecology, because mounting an effective immune response is costly for the host. Hypothesis: Since immune defence is the final line of protection against infective aggression, an adequate provision of dietary macromolecules - through a selective foraging behaviour - is required to maintain immunocompetence in infected hosts. Goal: We studied dietary switching and its consequences on immune response performance after an immune challenge using mealworms (*Tenebrio molitor*) as a model host. Methods: We evaluated diet selection and body mass balance (proxy of fitness) of larvae following a lipopolysaccharide challenge under three experimental nutritional treatments: an isocaloric low-protein/high-carbohydrate or high-protein/low-carbohydrate diet offered either independently (no-choice experiment) or simultaneously (dual-choice experiment). Furthermore, we studied the effect of diet co