

## ABSTRACT

### DISCRIMINATION LEARNING IN GRASSHOPPERS WITH REWARDS DIFFERING IN MACRONUTRIENTS

Grasshoppers are good models for testing discrimination using nutritional rewards, since there is a great deal of information available regarding their metabolism and dietary needs. Seventy nine American grasshoppers (*Schistocerca americana*) from a culture maintained at California State University, Fresno were trained to discriminate between two colored trays associated with diets differing in protein and carbohydrate content. The animals' choice and latency to approach each stimulus was analyzed as evidence of discrimination learning. This experiment investigates four basic questions: (1) Can an invertebrate learn to associate diets differing in protein content, as demonstrated in previous work (Simpson & White, 1990)? (2) Can grasshoppers learn to associate diets differing in carbohydrate content? (3) Can grasshoppers provide a novel model for associative learning? Finally (4) is there a more effective and efficient method for testing discrimination in a herbivorous invertebrate?

Ashley Layne Jensen  
August 2008