

ABSTRACT

The Effect of Extracts from *Serjania paucidentata* (D.C.) on Feeding, Growth and Mortality of the Fall Armyworm, *Spodoptera frugiperda* (J.E. Smith) (Lepidoptera: Noctuidae).

Dorothy Dianne Peterkin

Green plants have developed protective secondary compounds or allelochemicals from evolutionary association with phytophagous animals. These chemicals occur in a range of chemical groups and may be toxins, antifeedants or insect hormone analogues which can be used in novel approaches to insect pest management.

The extract from a local plant *Serjania paucidentata* contains saponins and is toxic to Brine Shrimp ($ED_{50} = 0.32$ mg/ml). The properties of *S. paucidentata* were investigated on the Fall Armyworm, *Spodoptera frugiperda*. The effect produced by the aqueous methanolic fraction and the crude extract were the same. These had ED_{50} 's of 3.27 mg/ml and 2.355 mg/ml respectively when incorporated into a defined diet. A concentration of 11.43 mg/g diet produced 100% mortality in 10 days. Reduced feeding, decreased growth rates and pupal weights, and increased developmental periods were produced in *S. frugiperda* at sub-lethal doses. Insects were deterred from feeding on corn leaf squares treated with 1% extract in choice tests.

Toxicity and antifeedant properties are dosage dependent. Typical of unpurified plant extracts, *S. paucidentata* extracts exhibited multiple modes of action as a stomach poison, antifeedant and possible growth retardant. Phytochemicals from local plants are unexplored resources, which must be documented and utilized. There is much scope in this area for further study.