1. SUMMARY

The effects of temperature, mating and larval diet on the levels of five pteridine compounds in head capsules of adult Pectinophora scutigera were investigated. Of these large differences in temperature produced significant changes in most of the pteridines.

Using the technique of pteridine analysis developed in project DAQ27L for P. scutigera cultured at 25°C, the apparent ages of field collected adults were determined for several collection dates during a cotton season at Biloela. Apparent ages ranged from 10 to more than 40 days.

Pteridine analyses of heads of adult Heliothis armigera and Heliothis punctigera showed similar compounds to those of P. scutigera at different absolute and relative concentrations.

The fatty acid profiles of adult P. scutigera from different dietary backgrounds showed interesting quantitative differences. The profile of male adults of H. armigera contained many more minor fatty acids than for P. scutigera.

2. REPORT

2.1 Introduction

Insects of the order Lepidoptera remain as major pests of cotton in Australia. Heliothis spp. are a problem in all areas. The pinkspotted bollworm (Pectinophora scutigera) reaches pest status mainly in the Dawson and Callide Valleys of central Queensland but has a much wider distribution on native hosts. Before burial of late season cotton trash at Biloela in 1987/88 high levels of infestation of P. scutigera were recorded at some sites.

A better understanding of the population dynamics of the Lepidopterous pests, including host plant origins and movement of infestations is needed to assist in control strategies. The ability to determine the age of field collected adults of the pest species would be an important contribution to these studies.

In DAQ27L, a rapid chemical method for estimating the age of adults of P. scutigera cultured on artificial diet at 25°C was developed using an analyses of fluorescent pteridine compounds.

The primary aim in DAQ36L was to test the applicability of this method in estimating the ages of field collected adults of P. scutigera.

Preliminary work has also been carried out on:

(i) pteridine compounds in the head capsules of Heliothis spp.

(ii) the fatty acid profiles of adults of P. scutigera and H. armigera, cultured on an artificial diet or flowers of Hibiscus spp.