ANNEXURE V

KEYS FOR MEALYBUG IDENTIFICATION OF PSEUDOCOCCIDAE FAMILY

Family: Pseudococcidae (Modified from Gordon Ferris)

- *Elongate to broadly oval shaped body*
- *Antennae with 6-9 segments*
- *Three segmented labium with apico-ventral setae on each side of the terminal segment*
- *Legs well developed; claw with a pair of digitule and with or without denticle, tarsal digitules setose or knobbed; translucent pores present at least on the tibia*
- *Tubular ducts present*
- *Presence of anterior and posterior pairs of ostiole*
- *Anal ring at the apex with 2 rows of cells and 6 slender setae*
- *Presence of trilocular pores on the dorsum and ventral*
- *Cerarii with conical setae accompanied by a concentration of trilocular pores, and situated on the margins*
- *Presence of circulus between III and IV abdominal segments*
- *Presence of multilocular disc pores*

Overview

In the study area, this family was represented by only three species

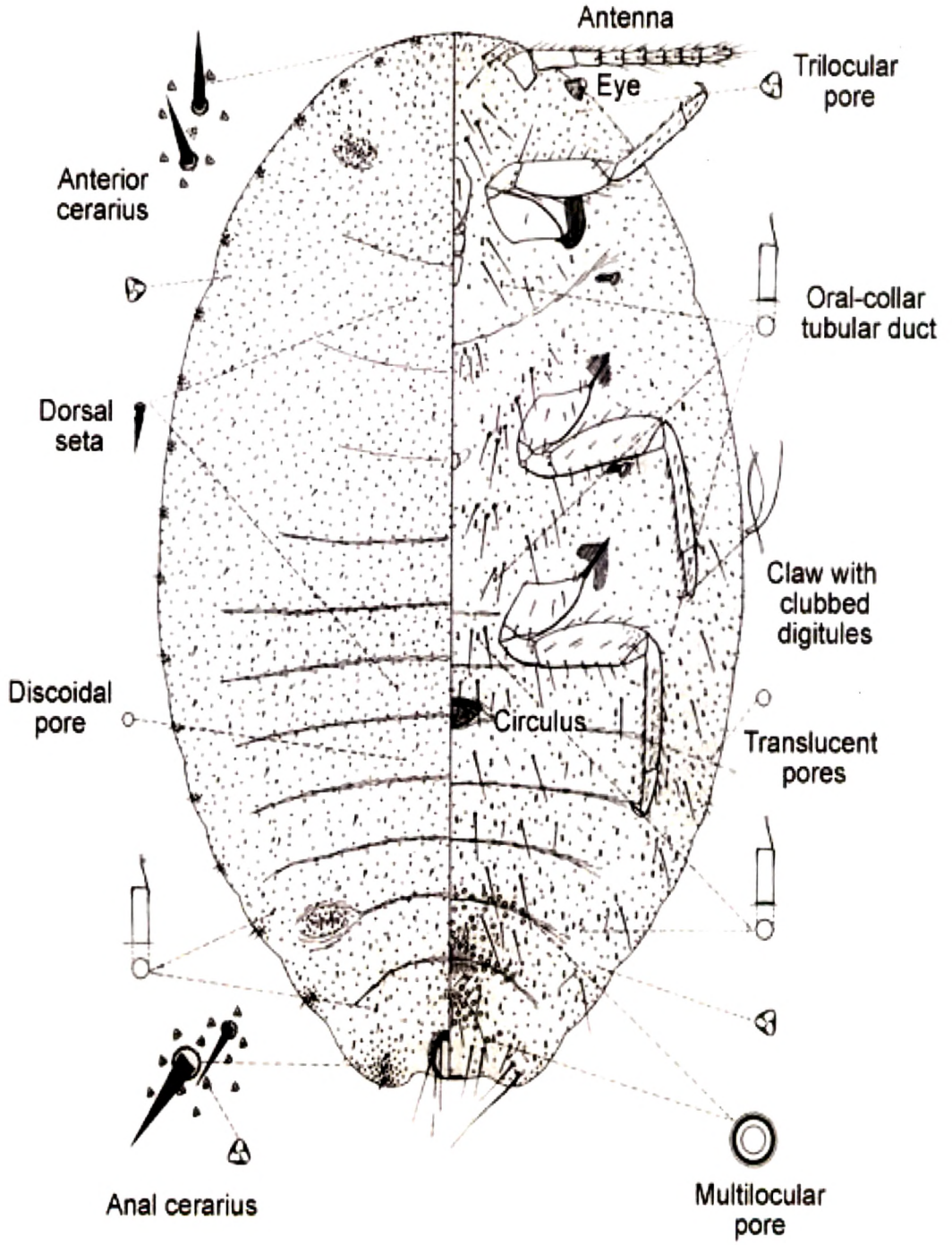
Phenacoccus solenopsis Tinsley 1898

Field Characters

- *Body oval, often quite large (5 mm); somewhat rounded in lateral view; dark green almost black*
- *Legs red*
- *Covered by thin, white, mealy wax, with dark dorso-submedibal bare spots on inter segmental areas of thorax and abdomen*
- *These areas forming 1 pair of dark longitudinal lines on dorsum*
- *Ovisac absent from dorsum, but well developed ventrally*
- *Body is with 18 pairs of lateral wax filaments, posterior pairs longest, up to one forth of length of the body*
- *Surface of lateral filaments rough*

Validation Characters

- *Without quinquelocular pores*
- *Without dorsal multilocular pores or oral-collar tubular ducts*
- *Ventral multilocular pores normally present on segments VI or VII to VIII*
- *Normally with 9-segmented antennae*
- *Circulus usually large and flaccid*
- *Translucent pores on apex of femur and on tibia*
- *Denticle on claw*



Phenacoccus solenopsis Tinsley 1898

Maconellicoccus hirsutus Green, 1903

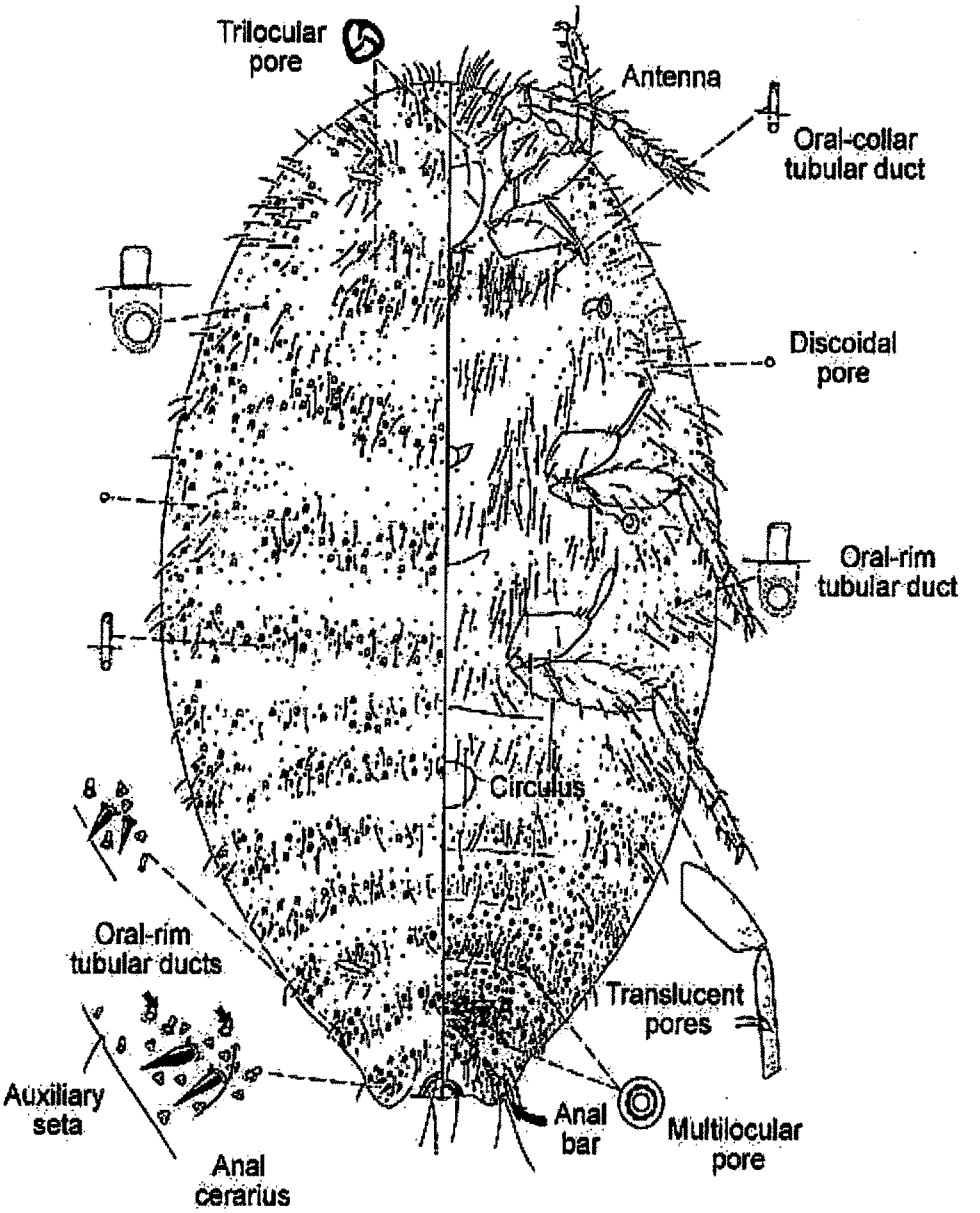
Common name: Pink hibiscus mealybug

Field Characters

- *Body elongate oval*
- *Body red-brown to orange-pink*
- *Legs white or light yellow*
- *Body covered by white mealy wax, without bare areas on dorsum*
- *Ovisac covers dorsal surface; with 2 or 3 pair of inconspicuous lateral wax filaments, often not visible*
- *Oviparous, eggs pink*
- *Specimens turning black in 70% alcohol*

Validation Characters

- *Oral-rim tubular ducts numerous over dorsum, often with more than 30 on some abdominal segment*
- *Oral rims with distinctively shaped rim*
- *Outer edge of rim indefinite unlike most oral rims that have a definite edge; with 4 to 6 indefinite pairs of cerarii, composed of 2 conical setae and little or no concentration of basal trilocular pores; dorsal oral collars scattered over surface*
- *Anal bar present but often inconspicuous*
- *Antennae 9-segmented*



Maconellicoccus hirsutus Green, 1903

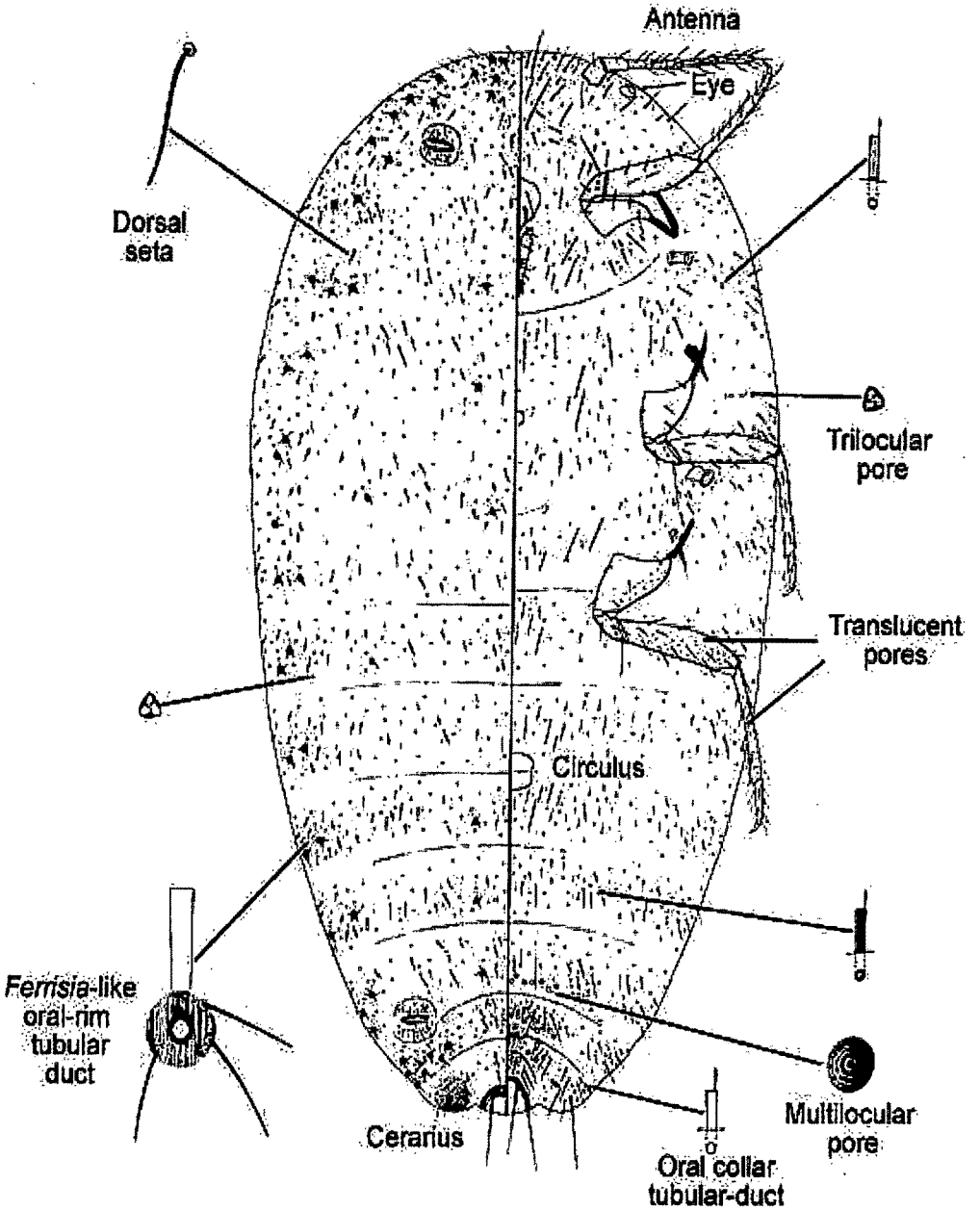
Ferrisia Virgata Cockerell, 1893

Field Characters

- *Body elongate oval*
- *Body dark grey*
- *Legs dark brown*
- *Body is covered by white mealy wax, with 2 sub-medullar longitudinal bare areas on dorsum*
- *Dorsal ovisac absent*
- *Few filamentous strands on ventral, forming a pad; with 1 pair of conspicuous lateral wax filaments, about 1/2 as long as body*
- *Occurring on all parts of plant, usually in protected area*
- *Usually ovoviviparous*

Validation characters

- *Setae associated with ferrisia-like tubular ducts incorporated in rim*
- *Ventral multiloculars present on posterior 3 abdominal segments, with more than 10 multilocular pores on segment VI*
- *Ferrisia-like rim around large tubular ducts*
- *1 pair of cerarii*



Ferrisia Virgata Cockerell, 1893

Nature of Damage of the species of family Pseudococcidae

Infested growing points become stunted and swollen. This varies according to the susceptibility of each host species. In highly susceptible plants, even brief probing of unexpanded leaves causes severe crumpling of the leaves, and heavy infestation can cause defoliation and even death of the plant. As the plant dies back, the mealybugs migrate to healthy tissue, so the colonies migrate from shoot tips to twigs to branches and finally down the trunk. The mealybugs themselves are in general readily visible, though sometimes hidden in the swollen growth.