

TAXONOMICAL AND BIOLOGICAL STUDIES
OF THE SPINY BOLLWORM Earias insulana (Boisd.)

THESIS

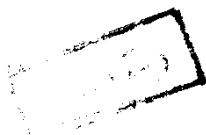
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Requirements for the Award of the Degree
Of*

MASTER OF SCIENCE

By

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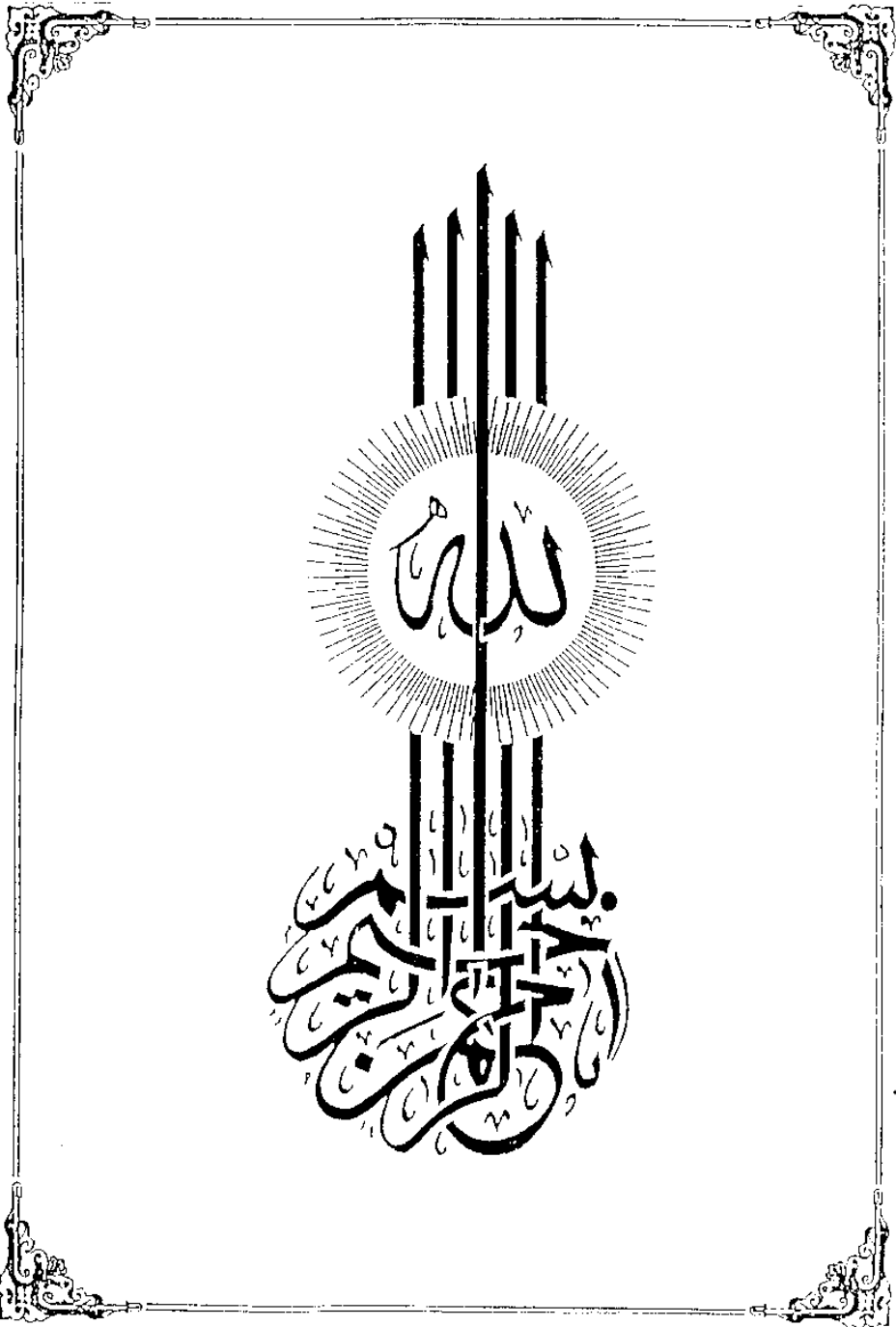
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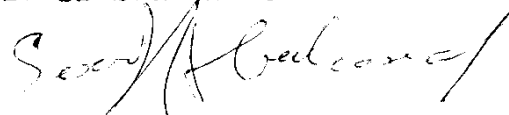
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I INTRODUCTION

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The spiny bollworm Earias insulana (Boisd.) is one of the major cotton pests in A.R. Egypt. It is a serious insect pest attacking cotton bolls and various malvaceous plants. It belongs to family Noctuidae, Order Lepidoptera.

The economic importance of Earias insulana (Boisd.) comes from the fact that it attacks the cotton during the harvesting season causing great loss reaching to about 50 % of the bolls, and sometimes increasing to 85 %.

The result of the attack causes retardation in the maturity of the bolls and decrease in the quality and quantity of the cotton fibres.

In addition to the attack of cotton, other malvaceous plants are also attacked as Hibiscus esculentus, Hibiscus sabdariffa, Hibiscus cannabinus, Ceratonja siliqua and Zea mays. In winter, it occurs on Abutilon avicennae and Althaea rosea, etc., waiting the next season of cotton plant and okra.

Aim of the present work:

The spiny bollworm Earias insulana (Boisd.) appears in various forms differing in their colour pattern. These different forms have been investigated from the following points of view:

- 1- Taxonomically: by studying their taxonomic position.
- 2- Morphologically: The chaetotaxy of larva, wing venation and legs of adult specimens having different colour patterns are examined with special studies on the genitalia of both sexes.
- 3- Seasonal abundance: A survey is done and the peak of infestation is studied for two successive years.
- 4- Biology and host plants: The longevity, fecundity and life cycle of the spiny bollworm are examined under different temperatures and humidities.

The main purpose of this work is to determine if the individuals having different colour patterns belong to one or several species, to different strains or varieties.

II LITERATURE REVIEW

II- LITERATURE REVIEW

(1) Taxonomic status:

Earias insulana (Boisd.) appears in different forms determined by several authors as different species. Seitz (1907), Gardner (1947), and Dugast (1949) mentioned the synonyms of Earias, and showed its taxonomic position.

Pomeroy (1925) mentioned that, Earias luteolaria (Hamps.) is only a form of Earias biplaga (Wlk.), and that Earias citrina (Saalm.), is the male.

(2) Morphology:

Seitz (1907) mentioned the morphological characters of the genus Earias Hbn. and several species. He also described five forms of Earias insulana (Boisd.): ab. insulana with yellowish green forewing, ab. anthophil-
-ana with ochreous forewing, ab. ochreinargo with the costal and inner margin of the forewing ochreous, mottled with purple, the fringe with purple tips, ab. semifascia with the space between median and outer lines filled with purplish or rufous colour. The last form, ab. dorsivitta (Stgr.), has a longitudinal median grey stripe. He also

described Earias cupreoviridis (Wlk.), where the forewing is bright green washed with yellow, a red brown dot at the middle of cell and another large at its end, in the form decolorate, subspecies from Sambawa, the whole forewing has lost its green colour, and became light fawn in colour without any markings, but with the costal edge, termen and fringe brownish.

Gardner (1947) gave detailed descriptions of the morphological characters of larvae of different species from genus Earias Hubner. He added a comparative description of the setae of larvae of Earias insulana (Boisd.), Earias cupreoviridis(Wlk.), Earias fabia (Stoll.), Earias luteolaria(Hampson) and several other Earias species.

Dugast (1949) gave descriptions to different stages of Earias insulana (Boisd.) and Earias biplaga (Wlk.). He mentioned that these two species are different from each other in adult stage. The middle legs of Earias insulana male have long and abundant hairs on femur and tibia while the legs of Earias biplaga male lack these hairs.