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# MASS REARING OF SESAMIA CRETICA LED. LARVAE. ON AN ARTIFICIAL MEDIUM DIET .

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***Abstract***

A trial for mass rearing of *Sesamia cretica* larvae on an artificial medium diet was carried out in the present research under a constant temperature of 27±2°C. It could complete five successive generations on the used diet. While mean larval period recorded 40.6 days for females and 37.7 days for males in the first generatin, it was significantly decreased to 30.5 and 24.4 days for females and males, respectively in the fifth generaion. Mean pupal durations in all generations were nearly similar and recorded 9.4 and 8.7 days for female and male pupae, respectively in the last generation. The moths of the fifth generation lived the shortest period; 5.9 days for females and 5.1 days for males.

Percentages of pupation and adult emergence were clearly high. They recorded 89.1 - 100% for the first and 78.7-93.5% for the latter.

Mean weights of the female and male pupae were 161.4 and 125.6mg, respectively in the last generatin. The obtained moths laid normal eggs.

## INTRODUCTION

The Pink Stem Borer S.cretica is considered a serious pest attacking sugarcane and maize in the seedling stage in Egypt.

Maize plants are considered the common food which is used for rearing the larvae of this insect. However, these plants are not avaliable during winter season, so it was necessary to search for another substitute for the feeding. Many researchers used different artificial diets in this approach; Salama and Tolba (1971), Khadr *et al* (1985) and Bosque-Perez and Dabrowski (1987).

This research is also considered as a trial for rearing larvae of the insect under investigation on an artificial diet on a large scale.

## MATERIALS AND METHODS

Newly hatched S.cretica larvae obtained from a laboratory culture were reared on an artificial medium diet. The composition of this diet is shown in Table 1

The diet was modified from that described by Isa and Khadr (1973). This diet was distributed in 1x3" clean glass vials, each received 9 gm. Two larvae were placed on the surface of the paste in each vial which was plugged with cotton wool. The vials were kept under a constant temperature of 27 ± 2°C.

Table 1. Components of the diet used for rearing *S.cretica* larvae .

| Components | Quantities (a) |
|---|---|
| Distilled water | 3600 ml. |
| Agar agar | 72 gm. |
| "Senn" flour | 162 gm. |
| Corn leaf powder (b) | 320 gm. |
| Sucrose | 36 gm. |
| Glucose | 36 gm. |
| Casein | 36 gm. |
| Yeast extract | 144 gm. |
| Ascorbic acid | 10.8 gm. |
| Methyl paraben (c) | 36 ml. |
| Sorbic acid (d) | 36 ml. |

(a) For preparing 4 lit. diet enough for 1000 larvae
(b) Shade dried fine cuts of leaves, crushed and seived
(c) a 20% solution in alcohol
(d) a 10% solution in alcohol

Pupae were sexed, weighed and placed individually in similar glass vials, each was provided with a piece of moistened cotton wool. The vials were also plugged with cotton and kept at the same temperature until moth emergence. Each pair of newly emerged moths (male and female) was introduced into a lantern glass cage, fitted on a plastic pot of about 10 cm. in diameter containing 2 to 3 maize seedlings (12 to 20 cm. height) for depositing eggs. The jars were covered with muslin cloth which was daily moistened with water (Metwally, 1987).

Durations of larvae, pupae and moths were recorded in addition to weight of pupae. This technique was followed through five successive generations.

F-test and L.S.D values were used in this research.

## RESULTS AND DISCUSSION

Data resulted from rearing S.cretica on an artificial medium diet for five successive generations under 27±2°C are shown in Table 2. It could be noticed from the table that, mean larval duration in the first generation was significantly the longest (37.7 and 40.6 days) and decreased gradually to 23.1 and 23.9 days in the fourth and to 24.4 and 30.5 days in the fifth one for male and female individuals, respectively.

Mean larval period of the last generation was nearly similar to that which recorded by Khadr *et al* (1985) either when they reared S.cretica larvae on the artificial diet (30.5 and 31.7 days) or on maize cuttings (26.3 and 31.7 days).

Regardless of the generation, the obtained pupae lasted 7.3-10.2 days until moth emergence and that was similar to mean pupal duration (9.3-9.7 days) recorded by the same authors.

Moths lived relatively longer periods (6.6-8.4 days) in case of the first three generations than those of the latter ones (5.1-6.4 days), Table 2. It is generally noticed that, mean durations of the females were longer than that of males in all stages.

Pupation percentages were not less than 89.1 and mean pupal weight of the females was steadly heavier than that of the males in all generations. Mean pupal weight of the last generation was clearly similar to that obtained by Khadr *et al* (1985) from rearing this insect on corn plants; 161.1 and 125.4 mg. for females and males, respectively.

Adult emergence rate was high and ranged 78.7-93.5% through the considered generations. Also, all pairs of female and male moths could mate normally and produced fertile eggs.

Table 2. Rearing of S.cretica larvae on an artificial medium diet for five successive generations under controled temperature of 27 ± 2°C.

| Generation | Mean duratin (days) of : | | | Percentage of | | Mean pupal weight (mg) |
|---|---|---|---|---|---|---|
| | Larva | Pupa | Adult | Pupation | Adult emergence | |
| 1st ♀ | 36-45 | 7-12 | 6-10 | 100 | 78.7 | 130-231 |
| | 40.6** | 9.8 | 7.8 | | | 171.2 |
| 1st ♂ | 33-42 | 5-10 | 5-11 | | | 116-196* |
| | 37.7** | 7.3* | 6.8 | | | 160.6 |
| 2nd ♀ | 30-45 | 7-12 | 6-11 | 98.4 | 93.5 | 125-255 |
| | 36.9 | 10.2 | 8.4 | | | 178.1 |
| 2nd ♂ | 27-33 | 7-12 | 5-11 | | | 111-183 |
| | 30.4 | 9.9 | 6.6 | | | 140.6 |
| 3rd ♀ | 25-37 | 7-11 | 5-11 | 89.1 | 89.8 | 134-198 |
| | 30.3 | 9.0 | 7.3 | | | 164.8 |
| 3rd ♂ | 23-32 | 7-12 | 5-10 | | | 113-155 |
| | 27.0 | 9.0 | 6.8 | | | 136.0 |
| 4th ♀ | 20-33 | 7-11 | 3-11 | 97.7 | 90.8 | 119-243 |
| | 32.9 | 9.6 | 6.3 | | | 178.6 |
| 4th ♂ | 18-26 | 5-12 | 3-10 | | | 113-193 |
| | 23.1 | 10.0 | 6.4 | | | 144.5 |
| 5th ♀ | 20-38 | 6-11 | 3-9 | 91.4 | 90.5 | 114-200 |
| | 30.5 | 9.4 | 5.9* | | | 161.4 |
| 5th ♂ | 16-38 | 6-12 | 3-8 | | | 99-169 |
| | 24.4 | 8.7 | 5.1* | | | 125.6 |

* Significant ** Highly Significant

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# تربية يرقات دودة القصب الكبيرة (سيزاميا كرتيكا) بأعداد كبيرة على بيئة غذائية صناعية

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يهدف هذا البحث الى تربية يرقات دودة القصب الكبيرة على بيئة غذائية صناعية بغرض إنتاج كميات كبيرة منها وذلك تحت درجة حرارة ٢٧ ± ٢ ° م.

أمكن تربية هذه الحشرة على البيئة الصناعيه لمدة خمسة أجيال متتالية وكانت النتائج كما يلى :

بلغ متوسط مدة الطور اليرقى ٤٠,٦ يوما للإناث ، ٣٧,٧ يوما للذكور فى الجيل الأول، بينما إنخفض بدرجة معنوية الى ٣٠,٥ ، ٢٤,٤ يوما لكلا الجنسين على التوالى فى الجيل الخامس.

كان متوسط مدة طور العذراء متشابه تقريبا فى الأجيال المختلفة وتراوح بين ٨,٧ يوما فى الذكور ، ٩,٤ يوما فى الاناث بالجيل الأخير. هذا وقد عاشت الفراشات الناتجه من هذا الجيل أقصر مدة حيث سجلت ٥,١ يوما للذكور ، ٥,٩ يوما للإناث.

كانت النسبة المئوية للتعذر أو لخروج الفراشات عالية حيث بلغت ٨٩,١ – ١٠٠٪، ٧٨,٧ – ٩٣,٥ ٪ للاناث والذكور على التوالى.

تراوح متوسط أوزان العذارى فى الجيل الأخير بين ١٦١,٤ ملجم / أنثى ، ١٢٥,٦ ملجم/ذكر وقد كانت الفراشات الناتجة فى جميع الأجيال طبيعية وأمكنها التزاوج ووضع بيض مخصب.