

Studies on The Use Of The Polythene Sheet During Silkworm Rearing

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ABSTRACT

Young *mulberry silkworm* larvae were reared on polythene sheet and paraffin paper as a bottom and cover during first three instars during spring and autumn season (2015). This investigation was carried out Department of Plant Protection, Faculty of Agriculture, Mansoura, University. Results recorded that using polythene sheet and paraffin paper as cover and a bottom have significant increase on These economical than control parameters. Also results showed that reared during spring was better than autumn season.

INTRODUCTION

Today sericulture is practiced in industrially advanced countries such as Japan and China , as well as Korea and India which are becoming industrialized . Although , sericulture in developing countries had been considered for a long time as a subsidiary occupation in rural areas , recent technological development will be made them possible to practice sericulture on an intensive scale providing greater profits most of agricultural crops (El-Hattab ,1985 and El-Karaksy et al ,1989) .Silkworm productivity depends on mulberry leaf for feeding and healthy rearing. Temperature and humidity plays a vary vital role in silkworm growth andquality of the cocoon(Khan .,2014) and rearing with increase of humidity induces diseases (Ganga and Chetty, 1994) . Rajabi et al 2007) who found that the quality and quantity of mulberry leaves change due to climatic condition: maintenance of optimum temperature (27- 28 ° C)and humidity (75+ 5%) are ideal. Using polythene sheet as a bottom gave the best results (Ramaprasadaet ,2004) .The present investigation aimed to study the effect of using polythene sheet as a bottom and cover during young instars on silk worm production.

MATERIALS AND METHODS

The present investigation was applied during spring and autumn seasons of 2015.Experiments were carried out in laboratory of Department of Economic Entomology of Agriculture Mansoura University.

Mulberry leaves from local variety used for feeding mulberry silkworm larvae eggs of mulberry Silkworm collected from Sericulture Research Department – Plant Protection Research Institute – Agricultural Research center- Giza, Egypt.

Rearing equipment were washed and disinfected using tap water and formalin solution with 3 % concentration. During young silkworm instars polythene sheet used at bottom and cover. As well as paraffin paper applied for bottom and cover. Normal laboratory conditions were kept during rearing. Mulberry leaves were offer four times daily. Net of different sizes applied for cleaning silkworm bed. Three replicates were used for each treatment represented by one hundred larvae. Silkworm larvae reared in carton boxes were used as control

Durations of fifth instars larvae (day), larval weight (g),fresh cocoon weight (g),cocoon shell weight (g), pupal weight (g) cocoon shell ratio, fecundity, fertility, Hatchability. Data were analyzed using SAS 1985.

RESULTS AND DISCUSSION

1-Effect of polythene sheet on silkworm characters.

Cocoon weight:

The data in Table 1 showed that using polythene sheet as a bottom and cover are better than other treatments. Similarly, Ghazy(2008) who found that using polythene sheet as a bottom and cover resulted maximum cocoon weight.

Cocoon shell weight:

Using polythene sheet as a bottom and cover gave higher weight (table1) . These results are accordance with those founded by Ramaparasadaet al., (2004) who noticed that cocoon shell weight of *Bombyxmori* L. reared on polythene are highest weight than paraffin paper.

Silk ratio:

Data given in Table 1 clarify that using polythene sheet as a bottom and cover are high value than different treatments. These results are in agreement with Rajanet al.,(1995) who found that using polythene in reared silkworm larvae gave higher average of cocoon shell.

Table (1) Effect of polythene and paraffin as a bottom and cover on silkworm characters

	5 th Larval duration	Cocoon (weight g)	Cocoon shell weight	Pupal weight (g)	Silk ratio %	Larval weight	No egg / female	Egg fertility	Hatcha bility
Polythene	9 . 70 a	1.64 a	0.402 a	1.24 a	24.4 a	4.011 a	543.78 a	97.73 a	98.82 a
Paraffin	9 . 86 b	1.57 b	0.380 b	1.18 b	24,3 b	3,87 b	531 b	97.38 b	98.69 b
control	10 .50 c	1.42 c	0.320 c	1.105 c	22.24 c	3.52 c	510 c	96.67 c	96.95 c

Pupalweight:

Using polythene as a covertreatment acquired heavier weight of pupae than compared to other (Table1). The previous results are in agreement with the findings of Ghazy(2008) who reported that polythene have highest value for pupae weigh than paraffin treatment.

Fifth larval duration:

The results in Table 1 are highly significant differences between polythene, paraffin and control. These results are in agreement who found that using polythene during young instars reduced fifth larval duration of silkworm. These results are in agreement with Ramaprasada et al.,(2004) who found that using polythene during first and second instars gave better larval weight.

Larval weight:

Highly significant differences were obtained between all treatments. Where, polythene treatment was the best results. These results are in accordance with Ramaprasada et al.,(2004) who reported that using polythene during first three instars recorded best larval weight.

Fecundity:

Using polythene sheet led to a increase the number of eggs per female as shown in Table 1. These

results are according with Ramaprasada et al., (2004) Who noticed that, *Bombyxmori* L. reared on polythene are highest no egg / female than paraffin paper.

Fertility:

Data in Table 1 explained that using polythene sheet as a bottom and cover are higher than paraffin and control. These results are in agreement with Rajan et al.,(1995) who found that using polythene in reared silkworm larvae gave higher average of egg fertility.

Hatchability:

Obtained data in Table 1 revealed that, treatment of polythene as a bottom and cover recorded higher average compared to others. These results agreement with Ramaprasada et al.,(2004) who explained that cover silkworm larvae during reared with polythene have highest value than paraffin and control.

2- Effect of season on silkworm characters.

The data in Table 2 clear that, there were highly significant differences between seasons. Spring season more productivity. Same results were obtained by Harendra et al., (2013) who noticed that spring season showed better growth and cocoon characters followed by autumn season.

Table (2) effect of season on silkworm characters.

	5 th Larval duration (days)	Cocoon weight(g)	Cocoon shell weight	Pupal weight(g)	Silk ratio %	Larval weight	No egg / female	Egg fertility	Hatchabi lity
Spring	10.21 a	1.76 a	0.436 a	1.33 a	24.51 a	4.36 a	576.55 a	98.6 a	99.3 a
Autumn	9.21 b	1.53b	0.363b	1.16 b	23.50b	3.61 b	507.49 b	96.7 b	97.6 b

3- Interaction between season and treatments.

Data of spring season and polythene show highly significant differences for all characters than that of autumn (Table 3). Similar results were obtained by

Ghazy (2008) who found that data recorded during Spring season were better than Autumn for all characters.

Table (3)Effect of Interaction Between Polythene Sheet as A Bottom And Season on Silkworm Characters .

	5 th Larval duration (days)	Cocoon weigh(g)	Cocoon shell weight	Pupal weight(g)	Silk ratio %	Larval weight	No egg / female	Egg fertility	Hatchability
Polythan X spring	10.35 a	1.77 a	0.439 a	1.34 a	24.54 a	4.31 a	577.4 a	98.65 a	99.40 a
Paraffin x spring	10.55 b	1.66 b	0.408 b	1.25 b	24.42 a	4.20 b	565.26b	98.4 b	99.28 b
Polythen X autumn	9.15 c	1.52 c	0.370 c	1.15c	24.28 c	3.72c	506.1c	96.64c	98.19 c
Paraffin x autumn	9.00 d	1.48 c	0.360 d	1.12 c	24.2 c	3.55 d	498.7 d	96.32d	98.07 d

In conclusion, the results generally indicated that using polythene sheet as a bottom during spring and autumn season were proved to more efficient in rearing silkworm and gave highest value in all economic characters for silkworm.

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دراسات علي استخدام البولي اثيلين اثناء تربية ديدان الحرير.

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يهدف هذا البحث لمقارنة تأثير استخدام البولي اثيلين و ورق البرافين ك غطاء و كالفرش في صواني التربية خلال وسم الربيع والخريف عام ٢٠١٥ علي كفاءة إنتاجيه الشرائق وطول العمر الخامس . أظهرت النتائج ان استخدام البولي اثيلين يؤدي إلي ارتفاع كفاءة إنتاج الشرائق وقصر فترة العمر الخامس مقارنة بورق البرافين و الكنترول . كما أظهرت النتائج ان التربيه اثناء موسم الربيع افضل من موسم الخريف علي جميع الخصائص الاقتصادية و انتاج الشرائق .