BIOLOGICAL STUDIES OF THE PEACH FRUIT FLY, *BACTROCERA ZONATA* (SAUNDERS) (TEPHRITIDAE : DIPTERA) ON THREE ARTIFICIAL DIETS AT THREE CONSTANT TEMPERATURES

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Abstract

Effects of three artificial diets (bran, molasses and bagasse) at three constant temperatures (20, 25 and 30°C) on some biological aspects of peach fruit fly, *Bactrocera zonata*, were studied under laboratory conditions. The shortest durations of immature stages (egg incubation, larval and pupal durations) were obtained at 30°C especially, on brain diet. Mean durations of the three immature stags were 1.76, 5.25 and 7.04 days, respectively. While the highest mean percentages of egg hatching, pupation and adult emergence were occurred on bran diet at 25 °C. Mean percentages of egg hatching, pupation and adult emergence were 92.6, 90.49 and 94.27 on bran diet at 25°C.

. However, the lowest female fecundity and percentages of egg fertility were obtained from larvae, which reared on bagasse diet at the three tested temperatures. The means were 174 eggs and 60.84%, 386 eggs and 78.85% and 286 eggs and 66.43 % at 20, 25, 30°C, respectively. While, the highest female fecundity and percentages of eggs fertility were occurred on bran diet at 25 and 20°C being 683 eggs and 90.50% and 293 eggs and 75.88%. On contrast, at 30°C fecundity was higher on molasses diet (438 eggs) than on bran diet (331 eggs), but eggs fertility was still the highest on bran diet (87.08 %).

Female longevity was prolonged at 20°C when their larvae were reared on the three diets the mean being 108.43, 124.57, 153.13 days at bran, molasses, bagasse diets, respectively. Also, male longevity was prolonged at 20°C when their larvae were reared on the three tested diets, it means being 96.97, 111.43 and 137.72 days, respectively.

From the obtained results, it can be concluded that bran diet was the most preferable diets for rearing B. zonata specially under 25°C.

INTRODUCTION

Family Tephritidae is one of the most common families of Diptera. It includes more than 4,500 species, which distributed all over the world, out of them 50 species are regarded as major pest species on plant fruits. In Egypt Mediterranean fruit fly, *Ceratitis capitata* (Wied.) is considered as key pest on fruit tree. Recently, El-Minshawy *et al.* (1999) recorded *Bactrocera zonata* (Saunders) as a new pest on mango and peach fruits in Egypt. Afterwards this species was widely distributed in all

governorates and attacked fruits of wide range of host plants (Duyck *et al.,* 2004 and Afia, 2007).

Biological studies specially effects of temperature and diets on some biological aspects of *B. zonata* attracted attentions of several authors all over the world as well as in Egypt, i.e Qureshi *et al.* (1993), El-Minshawy *et al.* (1999) and Afia (2007) .

The aim of the present investigation was to study the effects of three constant temperatures and three artificial diets on some biological aspects of *B. zonata* under laboratory conditions in order to choose the optimum temperature suitable and cheapest diet for mass rearing.

MATERIALS AND METHODS

The peach fruit fly, *Bactrocera zonata* (Saunders) was reared in the laboratory of the Horticultural Insect Pests Department, Plant Protection Research Institute, Agricultural Research Center. Insects used in the present study were obtained from a permanent stock laboratory strain of fly kept at the peach fruit fly laboratory, Dokki, Giza. A stock culture of the fly was maintained by the rearing technique according Afia *et al.* (2004). The insect colonies were maintained on bran diet for six successive generations before experiment carried out.

Nine treatments, each contained five replicates were conducted in the laboratory to determine the incubation period of eggs, percentage of egg hatch, larval and pupal durations, percentages of pupation, emergence, fecundity, and fertility in addition to adults longevity were estimated for larvae, which reared on three artificial diets (bran, molasses and bagasse diets), under three constant temperatures (20, 25 or 30°C). Means±SE were calculated for each duration. Temperature was adjusted by using incubators equipped with two fluorescent lights (20 watt). Light was set at 12L:12D cycle and the relative humidity were adjusted between 60-70%.

Newly deposited eggs (100 eggs for each replicate) were placed in rows on moistened piece of black cloth over a sponge saturated with tap water in a Petri dish. Egg hatch was observed every 12 hours using a stereomicroscope. The newly hatched larvae were transferred to open plastic cups containing larval diets. The three artificial diets were prepared according to Bran diet (Afia *et al.*, 2004), Molasses diet (Awadallah and El-Hakim, 1987) and bagasse diet (Foda *et al.,* 1989). The cups were kept in a bigger plastic container with a layer of fine sand under the three constant temperatures. Usually, mature larvae were jumped outside the trays to pupate in sand. Pupation was daily recorded.

The newly formed pupae of each diet were separated from the sand using a sieve and the newly formed pupae was collected at the same day and counted. Each

pupa was placed in a plastic tube (3 x 1 cm) and covered with white muslin for aeration. The tubes were kept under the three tested constant temperatures. Adult emergence and percentage of emergence were recorded. When the majority of the adult had emerged and after four hours, thirty pairs of newly emerged adults (30 males and 30 females) were selected at random and kept in a small transparent plastic cage (15x15x10 cm), provided with wet cotton as a source of water and sugar, protein hydrolysate as food. After mating, females started oviposition. The laid eggs were removed daily from each replicate and kept on moistened piece of black clothes in Petri dish under the three tested constant temperature. The eggs were counted and number of hatching eggs represented the fertility was recorded. The number of the laid eggs was considered as measure of fecundity. Adult mortality in the cages also was recorded daily for determining the longevity for both sexes.

Results obtained were subjected to statistical analysis of variance by using Proc ANOVA in SAS (SAS Institute, 1998). When F value was significant separation between means were conducted by using LSD procedure in the same program.

RESULTS AND DISCUSSION

Results obtained for different biological aspects of *Bactrocera zonata* reared on three artificial diets at three constant temperatures are given in Tables (1&3). Results of statistical analysis are given in Tables (2 & 4).

Egg stage

The time required for egg development is represent egg incubation period. Results of statistical analysis showed significant difference between means of egg incubation at the three tested temperatures, which reared on three artificial diets. The shortest mean of incubation period was 1.76 days occurred at 30°C on bran diet , while the longest mean of incubation period was 5.34 days occurred at 20°C on bagasse diet.

Table 1. Mean durations±SE and percentage of survivals of B. zonata immature stages reared on three different artificial diets at three constant temperatures.

Temp./ °C	Diet	Incubation period /days	Percentage of egg hatchability	larval duration/ days	Percentage of pupation	Pupal duration /days	Percentage of adult emergence
20	Bran	3.84±0.28b	78.4±4.33a	12.66±0.27c	74.74±2.37a	16.88±0.35c	80.20±2.31a
	Molasses	4.81±0.18ab	72.8±3.81a	14.88±0.22b	63.74±3.26b	18.86±0.33b	76.72±2.87a
	Bagasse	5.34±0.24a	58.2 ±6.19b	17.16±0.37a	39.86±3.12c	20.69±0.40a	64.65±3.09 b
25	Bran	2.87±0.09b	92.6±1.36a	7.76±0.23b	90.49±2.65a	10.73±0.40c	94.27±1.66b
	Molasses	3.21±0.14 b	86.2±1.77b	8.25±0.28b	83.99±3.44ab	12.86±0.24b	90.33±1.40ab
	Bagasse	4.23±0.14a	79.8±2.42c	9.65±0.27a	75.44±4.80b	14.09±0.32a	83.72±3.03a
30	Bran	1.76±0.12b	88.6±0.75a	5.25±0.34b	87.72±3.09a	7.04±0.29c	92.36±0.91a
	Molasses	2.48±0.21a	81.4±2.06b	6.41±0.32b	81.79±3.96a	8.29±0.31b	86.94±4.64 a
	Bagasse	2.97±0.25a	68.8±2.22 c	7.87±0.26a	56.98±5.59b	9.47±0.28a	74.48±2.24 b

Also results indicated that at 30°C means of incubation periods reached their lowest means when reared on the three diets being 1.76, 2.48 and 2.97 days which reared on bran, molasses and bagasse diets, respectively . On the contrary, at 20°C means of incubation periods reached their maximum when reared on the three diets being 3.84, 4.81 and 5.34 days, which reared on the three tested diets, respectively.

From these results, it could be stated that incubation period was decreased gradually as temperature increased.

These results are similar to those obtained by El-Minshawy *et al.* (1999), Amin (2003) and El-Naggar (2004).

Regarding the percentage of egg hatchability, statistical analysis showed highly significant differences between means. The highest percentage of egg hatchability was occurred at 25°C for eggs on bran diet (92.6%), while the lowest percentages was occurred at 20°C for eggs reared on bagasse diet (58.2%). Also results showed that high egg hatchability % were occurred when reared on bran diet used at the three tested constant temperatures, the means being 78.4, 92.6 and 88.6% for 20, 25 and 30°C, respectively. While the lowest percentages of hatchability were 58.2, 79.8 and 68.8% at the three temperatures when used bagasse diet, respectively. From these results, it could be stated that bran diet at 25°C found to be the most favorable conditions.

These results are in harmony with those obtained by Qureshi *et al.* (1993), Amin (2003), El-Naggar (2004) and Afia (2007). On the contrary, these results differ from those obtained by Duyck *et al.* (2004), who recorded 10, 54, 71, 58 and 18% egg hatch at 15, 20, 25, 30 and 35°C, respectively.

Table 2. Results of statistical analysis of variance between mean durations and percentages of survivals of B. zonata immature stages reared on three artificial diets at three constant temperatures.

Temp./ °C	Diets	"F " test L.S.D	Egg incubation period	Percentage of egg hatchability	Larval duration	Percentagepupation	Pupal duration	Percentage adults Emergence
20	Bran	F	5.32	4.45	34.46	34.79	22.11	8.15
	Molasses	P	0.022	0.0358	0.0001	0.0001	0.0001	0.005
	Bagasse	L.S.D	1.243	9.564	1.427	5.5449	1.1209	5.723
25	Bran	F	17.59	11.95	11.24	4.18	26.93	8.115
	Molasses	P	0.0003	0.0014	0.0018	0.0420	0.0001	0.0145
	Bagasse	L.S.D	0.635	4.9432	1.106	9.0046	1.0104	6.142
30	Bran	F	10.65	36.75	15.15	12.49	14.61	9.68
	Molasses	P	0.0022	0.0001	0.0005	0.0012	0.0006	0.0031
	Bagasse	L.S.D	0.704	3.8778	1.274	9.6191	0.9048	7.289

Larval stage

Statistical analysis showed significant difference between means of larval duration, which reared on the three tested diets at the three constant temperatures. The shortest mean duration of larval stage was occurred at 30°C (5.25 days) reared on bran diet , while the longest mean duration was occurred at 20°C (17.16 days) reared on bagasse diet . Regarding the effects of diets on larval duration, results showed the shortest means larval duration were occurred for larvae reared on bran diet being 12.66, 7.76, 5.25 days at 20, 25 and 30°C, respectively . While the longest means were occurred for larvae reared on bagasse diet being 17.16, 9.65 and 7.87 days at three tested temperatures, respectively.

From these results it could stated that both temperature and diets significantly affected the larval duration. Bran diet at 30°C found to be the most favorable conditions for rearing larvae

These results are closely related to those obtained by El-Minshawy *et al.* (1999), Amin (2003), Duyck *et al.* (2004) and Afia (2007) who found that the larval periods were 9.7, 8.87 and 8.47 and 5 days when larvae reared on bran diet at 25°C. On the other hand, longer duration was reported by El-Gendy (2002) who found that the larval duration was 10.37days when reared larvae on molasses diet under laboratory conditions.

Regarding percentage of pupation, statistical analysis showed significant difference between means. The highest mean percentage of pupation was occurred for larvae reared on bran diet at 25°C (90.49%), while the shortest mean was occurred for larvae reared on bagasse diet at 20°C (39.86%). Also results showed that the three tested diets affected percentage of larval pupation at three tested temperatures. The highest mean percentages were occurred for larvae reared on bran diet being 74.74, 90.49 and 87.72% at 20, 25 and 30°C, respectively. While the lowest mean percentages were occurred for larvae reared on bagasse being 39.86, 75.44 and 56.98 % at three tested temperatures, respectively.

From the above-mentioned results, it could be stated that bran diet at 25°C found to be the most favorable conditions for rearing larvae.

These results are similar to those obtained by El-Minshawy *et al.* (1999), Amin (2003) and Afia (2007).

Pupal stage

Statistical analysis showed that means of pupal duration were significantly affected by both temperature and larval diets. The shortest mean of pupal duration was occurred at 30°C on bran diet (7.04 days). While the longest means pupal durations was occurred at 20°C on bagasse diet (20.69 days)

Regarding effects of the three tested diets on pupal mean duration , results revealed that the shortest means of pupal duration occurred for larvae reared on bran diet at the three tested temperature being 16.88 , 10.73 and 7.04 days at 20 , 25 and 30°C, respectively . While the longest means of pupal duration were occurred for those reared on bagasse being 20.69, 14.09 and 9.47days on the three tested temperatures, respectively.

The results similar to those obtain by Qureshi *et al.* (1993), El-Minshawy *et al.* (1999), Amin (2003), Duyck *et al.* (2004) and Afia (2007). While, Binay and Agarwal (2005) reported shorter pupal durations (8.4 days) on guava fruits.

Regarding effects of both temperature and diets on percentage of adult emergence, statistical analysis showed significant difference between means. The highest mean percentage occurred at 25°C for larvae reared on bran diet (94.27%). While the lowest mean occurred at 20°C for larvae reared on bagasse diet (64.65%).

Table 3. Mean durations±SE of B. zonata adult stage , fecundity , fertility and longevity of adults which their larvae reared on three different diets at three constant temperatures.

Temp./ °C	Diet	Pre-oviposition period/days	Oviposition period/ days	Post-oviposition period/days	Female longevity /days	Fecundity egg / Female	% Fertility	Male Longevity/days
20	Bran	22.29±1.24	76.88±3.98b	9.26±1.38	108.43±1:00c	293±3.0a	75.88±5.0a	96.97±2.00c
	Molasses	24.31±1.12	89.44±4.96b	10.82±1.32	124.57±1:00b	214±10.0b	70.07±5.0a	111.43± 0.43b
	Bagasse	27.18±1.87	113.52±8.72a	12.43±1.49	153.13±0.63a	174±4.0c	60.84±5.0b	137.72±1.00a
25	Bran	13.68±1.52	68.76±4.88a	7.69±1.31	91.13±1:30a	683±3.0a	90.50±5.0a	77.34±1.23a
	Molasses	15.48±1.44	56.72±4.01ab	5.95±1.14	78.15±1:00b	529±10.0 b	84.87±4.0ab	63.95±1.00b
	Bagasse	16.59±1.36	44.17±2.35b	9.02±1.24	69.78±1:00c	386±10.0c	78.85±3.0b	52.80±0.64c
30	Bran	9.61±1.32	49.83 ±2.43b	4.76±1.09	64.19±0.19b	331±1.0b	87.08±2.0a	68.93±1.00b
	Molasses	11.52±1.32	69.84±4.87a	8.25±1.20	89.61±0.61a	438±10.0a	79.86±0.1b	95.32±0.320a
	Bagasse	13.16±1.13	33.2±3.08c	6.28±1.20	52.64±2:00c	286±6.0c	66.43±0.4c	57.87±2.00c

With regards to effects of larval diets on mean percentages of adult emergence results showed that the highest mean percentages were occurred for larvae reared on bran diet at the three tested temperatures being 80.20 , 94.27and 92.36% at 20 , 25 and 30°C, respectively .While the lowest mean percentages were occurred for larvae reared on bagasse diet at the three tested temperature being 64.65 , 83.72 and 74.48 % for the three tested temperature , respectively.

From the above mentioned results it could be stated that bran diet at 25°C seemed to be the most favorable conditions to obtained the highest percentage of adults emergence.

These results are in harmony to those obtained by Duyck *et al.* (2004), El-Naggar (2004) and Afia (2007) .

Adult stage

During longevity of adult female it passed through three periods, pre-oviposition, oviposition and post-oviposition periods.

Results of statistical analysis for these data is given in table (4). It found more convenient to discuss results for each item separately.

Pre-oviposition period

Results showed that both factors insignificantly affected pre-oviposition period. However , the shortest mean of pre-oviposition period was occurred at 30°C on bran diet (9.61days), While the longest period was occurred at 20°C on bagasse diet (27.18 days). Also, the shortest means of pre-oviposition period were occurred when larvae reared on bran diet at three tested temperature being 22.29, 13.68 and 9.61days at 20, 25 and 30°C, respectively. While the longest means of pre-oviposition period were occurred when larvae reared on bagasse being 27.18, 16.59 and 13.16 at 20, 25 and 30°C, respectively.

From these results, it could be stated that both temperature and larval diets were insignificantly affected on the pre-oviposition period of adult females.

These results closely related to those obtained by El-Gendy (2002), El-Naggar (2004), and Afia (2007).

Oviposition period

Results of statistical analysis revealed that both temperature and diets significantly affected oviposition period of adult females. The longest mean oviposition period was occurred at 20°C for larvae reared on bagasse (113.52 days). While, the shortest mean oviposition period was occurred at 30°C for larvae reared also on ba-

gasse diet (33.20 days). However, the three tested larval diets showed miscellaneous effects on means oviposition period at the three constant temperatures.

From these results, it seemed that oviposition period of adult females mainly affected by prevailing temperature.

These results are similar to these obtained by El-Gendy (2002), El-Naggar (2004) and Afia (2007). However, Rana *et al.* (1992) recorded 14.8 days for this period on bran artificial diets.

Post -oviposition period

Statistical analysis showed insignificant effects of both temperature and diets on post-oviposition periods. However, the longest mean of post -oviposition period was occurred at 20°C for larvae reared on bagasse diet (12.43 days). While the shortest one was occurred at 30°C for, larvae reared on bran diet (4.76 days). Meanwhile the three tested larval diets showed miscellaneous effects on means post-oviposition period at three constant temperatures.

Table 4. Results of statistical analysis of variance between mean durations of fecundity , fertility and longevity of B. zonata adults which their larvae reared on three different diets at three constant temperatures.

Temp/ °C	Diet	"F " test L.S.D	Pre-oviposition period/ days	oviposition period/ days	Post-oviposition period / day	Female longevity /day	Fecundity egg / female	% Fertility	Male longevity
20	Bran	F	2.87	8.93	1.29	51.81	264.024	7.14	64.20
	Molasses	P	0.1334	0.0159	0.3422	0.0002	0.0001	0.0259	0.0001
	Bagasse	L.S.D	-	21.558	-	10.88	12.89	8.98	2.83
25	Bran	F	1.04	9.64	1.57	25.13	950.05	6.11	79.93
	Molasses	P	0.4097	0.0134	0.2832	0.0012	0.0001	0.0357	0.0001
	Bagasse	L.S.D	-	13.701	-	6.95	16.67	8.16	4.76
30	Bran	F	2.03	25.8	3.32	76.41	738.81	237.02	114.44
	Molasses	P	0.2122	0.0011	0.1072	0.0001	0.0001	0.0001	0.0001
	Bagasse	L.S.D	-	12.498	-	7.69	13.5	2.36	6.32

From these results, it seemed that post- oviposition period of *B. zonata* females were mainly affected by prevailing temperature.

These results are in harmony with those obtained by Afia (2007) who recorded 8.35, 5.84 and 3.89 days for this period on bran diet at 20, 25 and 30 °C, respectively. On contrary, Rana *et al.* (1992) and El-Minshawy *et al.* (1999) recorded 28 and 12-16 days on bran and carrot diets, respectively.

Longevity of adult female

Statistical analysis showed significant effects of temperature on mean longevity of adult females. The longest mean of female longevity was 153.13 days, which occurred at 20°C for larvae reared on bagasse diet. While the shortest mean longevity was 52.64 days was occurred at 30°C also one bagasse diet. However, the three tested larval diets showed miscellaneous effects on means longevity of adult females at three constant temperatures.

From afore mentioned results it seemed that adult female longevity mainly affected by prevailing temperature.

These results are similar to those obtained by El-Minshawy *et al.* (1999), El-Gendy (2002) and Afia (2007). On the contrary, Rana *et al.* (1992) and Amin (2003) recorded the longevity of female as 58.2 and 43.20 days on bran artificial diet, respectively.

Fecundity and Egg fertility

Statistical analysis showed highly significant effects of both temperature and larval diets on females fecundity as well as egg fertility. The highest mean fecundity was 683 eggs/female occurred at 25°C for larvae reared on bran diet. While the lowest mean fecundity was 174 eggs/female occurred at 20°C for larvae reared on bagasse diet. Regarding mean percentage of egg fertility results showed the highest mean percentage was 90.50 % occurred at 25°C for larvae reared on bran diet. While the lowest mean percentage of fertility was 60.84 % at 20°C for larvae reared on bagasse diet.

With regards to effects of the three tested diets on means fecundity of female at three constant temperatures, results showed that larvae, which reared on bran diets at 20 & 25°C gave the highest means of females fecundity being 293 and 683 eggs/female, respectively. While at 30°C the highest mean of fecundity obtained for larvae reared on molasses diet.

Results showed that highest percentages of egg fertility were occurred for larvae reared on bran diet at the three-tested temperature. The means were 75.88, 90.50 and 87.08 % at 20, 25 and 30 °C, respectively. While the lowest egg fertility were 60.84, 78.85 and 66.43 % occurred for larvae reared on bagasse diet at 20, 25 and 30°C, respectively.

From these results, it could be stated that bran diet at 25ºC seemed to be the most favorable conditions for *B. zonata.*

These results similar to those obtained by El-Minshawy *et al.* (1999) and Afia (2007). On the contrary, Duyck *et al.* (2004) found percentages of egg fertility was the lowest (46, 70 and 49% at 20, 25 and 30ºC), respectively.

Longevity of adult male

Statistical analysis showed significant effects of temperature on longevity of adult males. The longest mean of male longevity was 137.72 days, which occurred at 20°C for larvae reared on bagasse diet. While the shortest longevity was 52.80 days was occurred at 30°C also one bagasse diet. However, the three tested larval diets showed miscellaneous effects on longevity of adult males at three constant temperatures.

From these mentioned results it seemed that adult male longevity mainly affected by prevailing temperature.

These results are similar to those obtained by El-Minshawy *et al.* (1999) who recorded 100 days as the longevity of male flies reared on bran artificial diet.

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دراسة بيولوجية علي ذبابة ثمار الخوخ المرباة علي ثلاث بيئات صناعية لليرقات تحت ثلاث درجات حرارة ثابتة تحت الظروف المعملية

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٢- كلية الزراعة – جامعة عين شمس

تم تربية اليرقات علي ثلاث بيئات صناعية (الردة – المولاس – مصاصة القصب) وذلك علي ثلاث درجات حرارة ثابتة (٢٠، ٢٥، ٣٠°م) لدراسة النواحي البيولوجية المختلفة لذبابة الخوخ تحت الظروف المعملية.

تشير النتائج الي أن أقصر فترات للأطوار غير الكاملة (بيض – يرقات – عذاري) حدثت علي درجة ٣٠°م علي بيئة الردة. حيث وصلت فترات الأطوار الثلاثة ١،٧٦، ٥،٢٥، ٧،٠٤ يوماً علي التوالي. بينما وصلت أعلي نسب لفقس البيض والتحول للعذراء وفترات الحشرات الكاملة علي درجة ٢٥°م علي بيئة الردة وكانت النسب ٩٢،٦%، ٩٠،٤%، ٩٤،٢٧% علي التوالي.

بالنسبة لمقدرة الأنثي علي وضع البيض وخصوبة البيض فقد وصلت لأدني مستوياتها لليرقات المرباة علي بيئة مصاصة القصب (٦٠،٤%، ١٧٤ بيضة/للأنثي)،(٧٨،٨٥%، ٣٨٦ بيضة/للأنثي)، (٢٨٦، ٦٦،٤٣%) علي درجات ٢٠، ٢٥، ٣٠°م علي التوالي، بينما وصلت مقدرة الأنثي علي وضع البيض لأعلي مستوياتها وأعلي نسبة خصوبة لليرقات المرباة علي بيئة الردة (٦٨٣ بيضة/للأنثي، ٩٠،٥٠%)، (٢٩٣ بيضة/للأنثي، ٧٥،٨٨%) علي درجة ٢٠، ٢٥°م علي التوالي. وعلي العكس من ذلك عند درجة حرارة ٣٠°م علي بيئة المولاس حيث وصلت مقدرة الأنثي علي وضع البيض ٤٣٨ بيضة/للأنثي وعلي الردة ٣٣١ بيضة/للأنثي ولكن كانت نسبة خصوبة البيض ٨٧،٠٨%.

أما بالنسبة لطول فترة عمر الأنثي الكاملة فعند درجة ٢٠°م كانت ١٠٨،٤٣، ١٢٤،٥٧، ١٥٣،١٣ يوما/للأنثي عندما ربيت اليرقات علي بيئات الردة والمولاس ومصاصة القصب علي التوالي وأيضا بالنسبة لطول فترة عمر الذكر فقد كانت أقصر وصلت المتوسطات لأعلي فتراتها عند درجة ٢٠°م (٩٦،٩٧، ١١١،٤٣، ١٣٧،٧٢ يوماً) علي البيئات الثلاثة علي التوالي.

من النتائج السابقة يمكن إستنتاج أن أفضل درجة حرارة لتربية حشرة ذبابة ثمار الخوخ هي ٢٥°م وتكون تربية اليرقات علي بيئة الردة حيث كانت مقدرة الأنثي علي وضع البيض وخصوبة البيض في أعلي مستوياتها وأقل نسبة موت وأقصر فترات الحياة لجميع الأطوار.