BIOLOGY OF TRIATOMINAE (REDUVIIDADE, HEMIPTERA) FROM NORTH OF FORMOSA COUNTY (GOIÁS – BRAZIL). III. LENGTH OF LIFE CYCLE OF *PSAMMOLESTES TERTIUS* LENT AND JURBERG 1965.

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In the present work the life cycle of Psammolestes tertius *was studied. The mean length, in days, from each stage was: 26.3 (± 1.7) (1st), 28.6 (± 1.8) (2nd), 28.4 (± 1.8) (3rd), 32.2 (± 1.9) (4th) and 33.5 (± 5.8) (5th).*

The mean egg incubation period was 15.7 days (± 1.7). Overall mortality was 48.9% and egg viability was 65.7%.

INTRODUCTION

Psammolestes tertius described by Lent and Jurberg (1965) is a reduviidae found in the states of São Paulo, Minas Gerais, Goiás, Paraná, Ceará and Pernambuco.

Observations on ecological aspects of *P. tertius* were made by Barretto et al.[1] in some regions of the states of São Paulo and Minas Gerais. Sherlock et al.[6] also studied this reduviidae species in Bahia State.

The role of *P. tertius* in the epidemiology of Chagas disease is not clear yet. Dias[3] believes that *P. tertius* may contribute to the transmission of *T. cruzi* in wild foci. As demonstrated by Barretto et al.[1] and Dias[3] the biotope of *P. tertius* may be visited by some mammal species which are well known to be reservoirs of *T. cruzi.*

Barretto e Albuquerque[2] found a biotope of *P. tertius* visited by *Didelphis azarae* and *Rattus rattus:* 14,2% of 106 triatominae collected and examined for *T. cruzi* were positive for this flagellate.

Very little is known about the life cycle of *P. tertius.* There is only one paper in the literature dealing with some aspects of the life cycle of this triatominae (Dias, 1968).

The main objective of this paper is to present quantitative data on the life cycle of *P. tertius.*

MATERIAL AND METHODS

1. Origin of the population studied

The population of *P. tertius* studied in this paper was originated from eggs of females caught in *Phacellodomus rufrifons* nests, in wild environment.

The insects came from a place about 156 Km northeast of Brasilia, D.F., (Brazil) on the BR-020 highway.

The egg incubation period was observed on 105 specimens.

The total number of individuals studied from first instar nymph to adult was 37.

2. Maintenance of the population

The population studied was maintained and observed as described by Mello[5].

The insects were kept in an incubator without light.

The temperature and relative humidity were controlled by a thermohidrograph (Lambrecht, KG). The mean temperature was 23.2°C and the relative humidity was 87%.

The statistical analysis was effected as described by Mello[5].

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RESULTS

The complete cycle length, from egg to adult, had an average of 164.7 days.

The egg incubation period is shown in table 1. The mean was 15.7 (± 1.7) with 65.7% of viable eggs.

The occurrence of ecdyses, for all developmental stages, is shown in table 2. Overall mortality was 48.9%. The female/male ratio was 1.3.

TABLE 1

Incubation period of eggs of *P. tertius* under laboratory conditions

Incubation days	Nº of viable eggs
14	17
15	18
16	9
18	25
Total	105 (65.7%)

TABLE 2

Duration in days of different developmental stages of *P. tertius*

Developmental stages / Ecdyses (class int. in days)	NI	NII	NIII	NIV	NV
10 – 14	0	1	0	0	0
15 – 19	3	0	0	0	0
20 – 24	2	2	6	1	0
25 – 29	10	16	15	2	1
30 – 34	6	9	5	11	4
35 – 39	2	1	4	5	11
40 – 44	2	2	0	1	5
45 – 49	0	1	1	1	0
50 – 54	5	0	0	2	0
+ 60	7	1	0	2	2
Subtotal	37	33	31	25	23
Dead	10	4	2	6	2
Total	47	37	33	31	25

TABLE 3

Mortality and mean duration of different developmental stages of *P. tertius*

Develop. stages	Mean duration (days)	Mortality (%)	Survival (%)
eggs	15.7 (± 1.7)	–	–
I	26.3 (± 1.7)	21.2	78.7
II	28.6 (± 1.8)	10.8	89.1
III	28.4 (± 1.8)	6.1	93.9
IV	32.2 (± 1.9)	19.3	80.6
V	33.5 (± 5.8)	8.0	92.0

COMMENTS

Dias[3] studying the biology of *P. tertius* under laboratory conditions, observed that the entire life cycle (egg-adult) of this triatomine lasted from 95 to 128 days. The egg incubation period lasted 20 days and first instar nymphs varied from 7 to 12 days.

In comparison with the data presented by Dias[3], the life cycle of *P. tertius* studied in the present paper was much longer (164.7 days).

Although Dias[3] does not present numerical data on the mortality of *P. tertius* he comments on the high mortality of the population studied by him. In this paper, total mortality (1st instar nymph to adult) of *P. tertius* was high (48.9%) and egg viability was low (65.7%).

P. tertius is not an easy species to breed in the laboratory. High humidity (87%) seems to be an important condition for the maintenance of the species in the laboratory.

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RESUMO

No presente trabalho foi estudado o ciclo biológico de Psammolestes tertius. *A duração do ciclo de ovo a adulto foi em torno de 164.7 dias. A média de duração em dias para cada estágio foi: 26,3 (± 1,7) para o primeiro, 28,6 (± 1,8) para o segundo, 28,4 (± 1,8) para o terceiro, 32,3 (± 1,9) para o quarto e 33,5 (± 5,8) para o quinto.*

A média do período de incubação dos ovos foi 15,7 (± 1,7).

A mortalidade geral foi de 48,9% e a viabilidade dos ovos foi de 65,7%.

REFERENCES

1. BARRETO M. P. & CARVALHEIRO J. R. Estudos sobre reservatórios silvestres de *Trypanosoma cruzi.* XVIII. Observações sobre a ecologia do *Psammolestes tertius* Lent & Juberg, 1965. *Rev. Bras. Bio. 27*: 13-25, 1967.
2. BARRETO M. P. & ALBUQUERQUE R. D. Estudos sôbre reservatórios e vetores silvestres do *Trypanosoma cruzi.* XXXIII. Infecção experimental e natural do *Psammolestes tertius* Lent & Juberg, 1965, pelo *T. cruzi. Rev. Inst. Med. Trop. 11*: 165-168, 1969.
3. DIAS J. C. Notas sobre a biologia do *Psammolestes tertius* Lent & Juberg, 1965, no oeste do estado de Minas Gerais. *Rev. Bras. Mal. D. Trop. 20*: 171-187, 1968.
4. LENT H. & JURBERG J. O gênero *Psammolestes* Bergroth, 1911, com um estudo sobre a genitalia da espécie (Hemiptera, Reduviidae, Triatominae). *Rev. Bras. Biol. 25*: 349-376, 1965.
5. MELLO, D. A. Biology of Triatominae (Reduviidae -- Hemiptera) from North of Formosa Conty (Goiás - Brazil), I. Length of life cycle of *T. sordida* (Stal, 1859). *Rev. Soc. Bras. Med. Trop. X*: 327, 1976.
6. SHERLOCK, I. A. & SERAFIM, E. M. Fauna Triatominae do Estado da Bahia, Brasil. VI. Prevalência geográfica da infecção dos triatomíneos por *T. cruzi. Rev. Soc. Bras. Med. Trop. 8*: 129-142, 1974.