Biology of three species of the *Meccus phyllosomus* complex (Hemiptera: Reduviidae: Triatominae) fed on blood of hens and rabbits

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Aspects related to hatching, life time, number of blood meals to molt, mortality, feeding time and postfeed defecation delay for each instar of Meccus phyllosomus, M. mazzottii, *and* M. bassolsae*, life-cycle were evaluated and compared in two cohorts of each of those three species, fed on hens or rabbits. No significant (p > 0.05) differences were recorded among cohorts fed on hens respect to cohorts fed on rabbits in* M. phyllosomus *and* M. mazzottii *and the average time of hatching was 21.5 days for cohorts fed on hens and 22.5 for cohorts fed on rabbits. Average egg-to-adult development times were no significant (p > 0.05) different between both cohorts of* M. phyllosomus *and* M. mazzotti*, independent of the blood meal source. The average span in days for each instar fed on hens was not significantly different to the average span for each instar fed on rabbits, when comparisons were made by species. The number of blood meals at each nymphal instar varied from 1 to 6 in both cohorts of each species. The mortality rates were higher on older nymphs, in both cohorts of* M. phyllosomus *and* M. bassolsae*, whereas they were higher on first instar nymphs on* M. mazzottii*. Mean feeding time was no significant (p > 0.05) different in triatomines fed on hens or fed on rabbits, when each species were compared separately. A similar number of nymphs of each cohort, completed the cycle. Defecation delay was no significant (p > 0.05) different when cohorts fed on hens and fed on rabbits were compared by species. Most of the studied parameters showed no significant (p > 0.05) differences among those cohorts fed on hens and for fed on rabbits, which could mean a high degree of association of those species with birds as much as mammals, under wild conditions, increasing their capacity to colonize human dwellings.*

Key words: *Meccus phyllosomus* complex - biology - blood source - laboratory conditions

Mexico is one of the American countries with more (34) species of triatomines; among them, all the six species of the Meccus *phyllosomus* complex [*M. pallidipennis* Stål, *M. longipennis* Usinger, *M. picturatus* Usinger, *M. mazzottii* Usinger, *M. phyllosomus* (Burmeister), and *M. bassolsae* Alejandre-Aguilar, Nogueda-Torres, Cortés-Jiménez, Jurberg, Galvão and Carcavallo], play an important role in the transmission of *Trypanosoma cruzi* to human populations, because they can be found in both domestic and wild ecotopes, with frequent domiciliated colonies, and they frequently have high entomological indexes, used to monitored the Chagas control programs (Ramsey et al. 2000, Vidal-Acosta et al. 2000, Villegas-García & Santillán-Alarcón 2001, 2004, Magallón-Gastélum et al. 2004, Enger et al. 2004, Sosa-Jurado et al. 2004, Salazar-Schettino et al. 2005). Habits, feeding, and defecation behaviors of *M. pallidipennis* and *M. longipennis* have been extensively studied (Torres-Estrada et al. 1993, Mena-Segura et al. 1994, Bautista et al. 1999, Martínez-Ibarra & Katthain-Duchateau 1999, Martínez-Ibarra et al. 2003a, 2004, Breniere et al. 2004, Enger et al. 2004, Magallón-Gastélum et al. 2004, Martínez-Ibarra & Novelo-López 2004, Sosa-Jurado et al. 2004, Salazar-Schettino et al. 2005). In contrast, those behaviors aspects of *M. picturatus* and *M. mazzottii* have been only partially studied (Ramírez-Rovelo et al. 1990, Malo et al. 1993, Barbosa-Gómez & García da Silva 2001, Martínez-Ibarra et al. 2003b, 2005) or remain unknown, as in *M. phyllosomus* and in *M. bassolsae*. In consequence, taking into account the associations of those three last species in natural and artificial environments and previous information on its host preferences, the objective of this study was to determine the influence of the blood meal source on the life-cycle, reproductive development and feeding and defecation behavior of *M. phyllosomus, M. mazzottii,* and *M. bassolsae* under laboratory conditions.

MATERIALS AND METHODS

Laboratory colonies of *M. phyllosomus* and *M. mazzottii* established in 2004 from specimens captured in Oaxaca, Mexico were used, whereas a colony of *M. bassolsae*, established in 2004, with specimens originally obtained from Acatlan, Puebla, Mexico, was also used. Colonies were maintained at 27 ± 1ºC and 75 ± 5% relative humidity (rh) and fed weekly on immobilized Leghorn hens or New Zealand rabbits.

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Eggs of each species were grouped by date of oviposition to initiate two cohorts by species of 200 eggs each. After eclosion, the two groups of each species of first-instar nymphs were separated individually into plastic containers (5.5 cm diameter × 10.5 cm height), with an upcenter support of absorbent cardboard. Three days after eclosion, each cohort of nymphs was individually fed on Leghorn hens or New Zealand rabbits during a 1 h period, for the subsequent blood meals, they were fed weekly. Nymphs were observed from the beginning of feeding through an hour postfeeding for recording feeding and defecation behaviors. The bugs were maintained in a dark incubator at 27 ± 1ºC and 75 ± 5% rh, and were checked daily for ecdysis or death.

From the insects that completed development to the adult instar, 10 adult couples of each cohort were placed in individual containers (5.5 cm diameter × 10.5 cm height) and maintained as previously described to determine oviposition patterns.

The variables that showed a normal distribution were compared by Student t-test or analysis of variance (ANOVA). In the case of ANOVA tests, post hoc comparisons were made using the Scheffé test. The Wilcoxon nonparametric test was used for variables with a non-normal distribution. The chi-square test was used for comparison of frequencies. The differences were considered to be significant when $p < 0.05$.

RESULTS

Egg eclosion rate was over 70% in all cohorts, except on *M. bassolsae* fed on hen, with averages incubation period slightly above of twenty days for all studied cohorts. No significant ($p > 0.05$) difference was recorded among both cohorts of *M. phyllosomus*, and similarly, for *M. mazzottii* ($p > 0.05$). Significant ($p < 0.05$) difference was only recorded among the cohorts of *M. bassolsae*. Significant ($p < 0.05$) higher egg eclosion rates were recorded for both cohorts of *M. mazzotti*, when all cohorts were compared (Table I).

Average egg-to-adult development times were no significant ($p > 0.05$) different among both cohorts of *M. phyllosomus* and *M. mazzotti*, independent of the blood meal source. On the other hand, average times of both cohorts of *M. bassolsae* were no significant ($p > 0.05$) different one to each other, but they were significant ($p < 0.05$) higher than those for the other studied species (Tables II, III).

Average numbers of blood meals to molt to next instar were no significant ($p > 0.05$) different between both cohorts of *M. phyllosomus*, and between them and the cohorts of *M. mazzottii* fed on hens and that of *M. bassolsae* fed on rabbits. On the other hand, both cohorts of *M. mazzottii* and both of *M. bassolsae* were no significant ($p > 0.05$) different one to each other, independent of the blood meal source (Tables IV, V).

Mortality rates were no significant ($p > 0.05$) different among both cohorts of *M. mazzottii* but they were significant ($p < 0.05$) lower than those for remain four studied cohorts. On the other and, both cohorts of *M. phyllosomus*, and the one of *M. bassolsae* fed on hens had medium (from 45 to almost 60 %) mortality rates, significant ($p < 0.05$) different of the high mortality rate (78.6%) of the cohort of *M. bassolsae* fed on rabbits (Tables VI and VII). A no significant ($p > 0.05$) different number of females and males of each studied cohort of each species was obtained (Table VIII).

TABLE I

Egg eclosion rate and average incubation period for *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed every seven days on hens or rabbits

Species	Egg eclosion rate (%)		Average incubation period (in days) (range on parenthesis)	
	Hen	Rabbit	Hen	Rabbit
M. phyllosomus	82	70	21.5 (18-24)	21.7 (17-23)
M. mazzotti	99.5	92	22.2 (18-25)	23.1 (17-24)
M. bassolsae	78.5	53.5	21.7 (18-24)	21.1 (17-25)

TABLE II

Egg to adult development cycle of *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed every seven days on hens

	Duration in days					
	M. phyllosomus		*M. mazzotti*		*M. bassolsae*	
Instar	Nr	Mean ± SD	Nr	Mean ± SD	Nr	Mean ± SD
Egg-NI	164	19.4 ± 0.7	199	20.4 ± 5.7	107	21.7 ± 7.9
NI-NII	150	26.1 ± 8.9	164	32.4 ± 17.8	91	26.9 ± 6.3
NII-NIII	148	24.5 ± 4.2	159	39.8 ± 13.2	88	32.5 ± 13.1
NIII-NIV	138	32.1 ± 16.9	155	37.6 ± 9.8	79	48.6 ± 71.1
NIV-NV	108	57.8 ± 14.6	154	31.3 ± 8.9	66	61.9 ± 22.5
NV-AD	94	62.9 ± 11.8	145	51.7 ± 15.5	41	70.4 ± 21.7
Total	94	192.6 ± 22.7	145	191.7 ± 22.8	41	242.7 ± 54.6

TABLE III

Egg to adult development cycle of *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed every seven days on rabbits

	Duration in days					
	M. phyllosomus		*M. mazzotti*		*M. bassolsae*	
Instar	Nr	Mean ± SD	Nr	Mean ± SD	Nr	Mean ± SD
Egg-NI	140	19.7 ± 1.1	194	24.3 ± 8.6	157	22.4 ± 6.9
NI-NII	136	20.4 ± 7.1	167	20.4 ± 0.9	126	39.9 ± 11.5
NII-NIII	134	20.7 ± 4.7	157	31.2 ± 1.4	102	54.2 ± 21.8
NIII-NIV	126	37.6 ± 18.1	154	32.8 ± 1.8	92	66.2 ± 28.3
NIV-NV	104	51.9 ± 13.3	152	40.4 ± 0.9	84	53.5 ± 26.5
NV-AD	86	77.8 ± 8.2	143	59.1 ± 1.6	66	55.7 ± 20.2
Total	86	176.8 ± 34.8	143	201.9 ± 9.7	66	270.5 ± 44.0

TABLE IV

Number of blood meals for *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed every seven days on hens under laboratory conditions

	M. phyllosomus		*M. mazzotti*		*M. bassolsae*	
Instar	Nr of nymphs	Nr blood meals Mean ± SD	Nr of nymphs	Nr blood meals Mean ± SD	Nr of nymphs	Nr blood meals Mean ± SD
I	164	1.1 ± 0.1	199	1.2 ± 0.3	107	2.9 ± 0.9
II	150	1.4 ± 0.5	164	1.6 ± 1.1	91	1.5 ± 0.5
III	148	1.1 ± 0.1	159	1.7 ± 0.7	88	1.5 ± 0.6
IV	138	1.6 ± 0.6	155	1.9 ± 0.6	79	1.8 ± 0.7
V	108	1.9 ± 0.7	154	2.4 ± 1.1	66	2.2 ± 1.0
Total	94	6.7 ± 1.2	145	8.4 ± 1.5	41	9.6 ± 1.4

TABLE V

Number of blood meals for *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed every seven days on rabbits under laboratory conditions

	M. phyllosomus		*M. mazzotti*		*M. bassolsae*	
Instar	Nr of nymphs	Nr blood meals Mean ± SD	Nr of nymphs	Nr blood meals Mean ± SD	Nr of nymphs	Nr blood meals Mean ± SD
I	140	1.2 ± 1.3	194	1.4 ± 0.2	157	1.6 ± 0.4
II	136	1.2 ± 0.4	167	1.5 ± 0.3	126	1.5 ± 0.6
III	134	1.1 ± 0.3	157	2.2 ± 0.7	102	1.9 ± 0.8
IV	126	1.5 ± 0.6	154	2.2 ± 0.5	92	1.8 ± 0.4
V	104	1.6 ± 0.6	152	3.3 ± 0.2	84	1.9 ± 0.4
Total	86	6.2 ± 1.2	143	10.2 ± 0.8	66	8.4 ± 1.3

TABLE VI

Instar mortality for *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed on hens under laboratory conditions

	M. phyllosomus		*M. mazzotti*		*M. bassolsae*	
Instar	Nr nymphs	% mortality	Nr nymphs	% mortality	Nr nymphs	% mortality
I	164	8.5	199	12.6	107	15.0
II	150	1.3	164	3.1	91	3.3
III	148	6.7	159	2.5	88	10.2
IV	138	21.7	155	0.7	79	16.5
V	108	12.9	154	5.8	66	12.5
Total	94	(51.3)	145	(24.7)	41	(57.5)

TABLE VII

Instar mortality for *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed on rabbits under laboratory conditions

	M. phyllosomus		*M. mazzotti*		*M. bassolsae*	
Instar	Nr nymphs	% mortality	Nr nymphs	% mortality	Nr nymphs	% mortality
I	140	2.9	194	13.9	157	19.7
II	136	1.5	167	6.0	126	19.0
III	134	5.9	157	1.9	102	9.8
IV	126	17.5	154	1.3	92	8.7
V	104	17.3	152	5.9	84	21.4
Total	86	(45.1)	143	(29.0)	66	(78.6)

TABLE VIII

Feeding times (min) for *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed on hens under laboratory conditions

	M. phyllosomus		*M. mazzotti*		*M. bassolsae*	
Instar	Nr nymphs	Feeding times	Nr nymphs	Feeding times	Nr nymphs	Feeding times
I	164	12.7 ± 2.5	199	26.6 ± 1.1	107	19.4 ± 5.4
II	150	11.7 ± 3.8	164	22.1 ± 0.9	91	16.9 ± 6.8
III	148	8.1 ± 2.8	159	23.5 ± 0.9	88	18.7 ± 6.3
IV	138	10.6 ± 5.5	155	27.6 ± 0.6	79	17.4 ± 5.4
V	108	14.5 ± 8.1	154	29.4 ± 0.5	66	19.3 ± 6.5
Female	57	18.7 ± 4.4	74	25.0 ± 0.7	21	21.8 ±5.4
Male	51	20.4 ± 3.3	71	28.7 ± 0.4	20	19.4 ± 6.7

No significant ($p > 0.05$) difference was noticed when mean feeding times of every single instar of both cohorts of each species (fed on hens vs fed on rabbits) were compared. It was also recorded no significant ($p > 0.05$) difference in *M. mazzottii* and *M. bassolsae* when all seven instars where compared among them by cohort, however, in *M. phyllosomus* it was recorded a significant ($p < 0.05$) difference among most nymphal instars and adults (Tables VIII, IX).

Postfeed defecation delay was under ten minutes in both cohorts of *M. mazzottii* and in both of *M. bassolsae*, independent of the blood meal source. No significant ($p > 0.05$) difference was recorded with those four average times were recorded. Times for both cycles of *M. phyllosomus* were significant ($p < 0.05$) longer than those four for two remaining species (Tables X, XI).

DISCUSSION

Most of the time, it is really different to do a valid comparison between development times and some other related biological parameters about different species of triatomines, because they usually were grown under different laboratory conditions. However, it is possible to arrive to valid conclusions when methodologies and conditions are very similar. Some authors (Juarez 1970, Diotaiuti & Dias 1987, Lima-Gomes et al. 1990, Braga et al. 1998, Guarneri et al. 2000a, b) have published that the life cycle of at least seven Triatominae species were shorter on cohorts reared on mammals (mice) than on those reared on birds (chicken, pigeons or hens). However, the only two published researches about *Meccus* species (*M. picturatus* and *M. longipennis*), report no significant ($p > 0.05$) difference when cohorts fed on hens and fed on rabbits or fed on rats were compared (Martínez-Ibarra et al. 2003a, 2004). In the current study, the average development time of the cohorts of *M. phyllosomus* fed on hens (192.6 ± 22.7 days) and fed on rabbits (176.8 ± 34.8 days) was not significant ($p > 0.05$) different among both cohorts, and similarly, *M. mazzottii* ($p > 0.05$), fed on hens (191.7 ± 22.8) and fed on rabbits (201.9 ± 9.7), and *M. bassolsae* fed on hens (242.7 ± 54.6) and fed on rabbits (270.5 ± 44.0). These results could be expected, based on previous accounts of the natural association of these species with chicken and hens as much as with rodents on the wild of the same geographic area of Mexico (Magallón-Gastélum et al. 1998, Alejandre-Aguilar et al. 1999, Ramsey et al. 2000).

Average development time of the cohorts of *M. phyllosomus* and *M. mazzottii* fed on hens and fed on rabbits from the current study were compared to previous studies where some cohorts of *Meccus* species were reared under similar laboratory conditions. Average development time for *M. phyllosomus* and *M. mazzottii* was shorter than *M. longipennis* and *M. mazzottii,* similar to *M. picturatus* and longer than *M. pallidipennis*. Meanwhile, the average development time of *M. bassolsae* was similar to *M. longipennis* and *M. mazzottii*, and longer than *M. picturatus* and *M. pallidipennis* (Malo et al. 1993, Martínez-Ibarra et al. 2003b, 2004, 2005, Martínez-Ibarra & Novelo-López 2004).

Many authors report egg hatching rates in Triatominae species above 80% (Zeledón et al. 1970, Rabinovich 1972,

TABLE IX

Feeding times for *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed on rabbits under laboratory conditions

	M. phyllosomus		*M. mazzotti*		*M. bassolsae*	
Instar	Nr nymphs	Feeding times	Nr nymphs	Feeding times	Nr nymphs	Feeding times
I	140	11.2 ± 1.2	194	24.6 ± 0.9	157	21.4 ± 7.2
II	136	10.8 ± 3.3	167	20.1 ± 0.7	126	18.4 ± 6.4
III	134	7.2 ± 3.6	157	22.5 ± 0.8	102	17.9 ± 6.5
IV	126	7.9 ± 3.6	154	26.7 ± 0.4	92	18.2 ± 6.5
V	104	11.8 ± 5.8	152	28.4 ± 0.3	84	21.3 ± 5.5
Female	44	19.8 ± 6.6	73	24.0 ± 0.5	36	23.8 ± 6.7
Male	42	21.6 ± 4.3	70	26.7 ± 0.1	30	22.5 ± 6.9

TABLE X

Defecation times (min) for *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed on hens under laboratory conditions

	M. phyllosomus		*M. mazzotti*		*M. bassolsae*	
Instar	Nr nymphs	Defecation time	Nr nymphs	Defecation time	Nr nymphs	Defecation time
I	164	22.0 ± 6.18	199	11.4 ± 0.5	107	2.24 ± 0.3
II	150	22.6 ± 10.1	164	7.1 ± 0.7	91	2.0 ± 0.4
III	148	15.7 ± 12.8	159	8.1 ± 0.6	88	1.7 ± 0.4
IV	138	14.1 ± 12.4	155	3.5 ± 0.5	79	1.9 ± 0.4
V	108	20.2 ± 13.7	154	2.6 ± 0.9	66	1.6 ± 0.2
Female	57	22.7 ± 18.4	74	5.8 ± 1.1	21	3.2 ± 3.5
Male	51	23.5 ± 19.6	71	6.9 ± 0.4	20	4.1 ± 3.8

TABLE XI

Defecation times for *Meccus phyllosomus, M. mazzottii,* and *M. bassolsae* fed on rabbits under laboratory conditions

	M. phyllosomus		*M. mazzotti*		*M. bassolsae*	
Instar	Nr nymphs	Defecation time	Nr nymphs	Defecation time	Nr nymphs	Defecation time
I	140	24.1 ± 7.1	194	10.7 ± 0.3	157	1.9 ± 0.7
II	136	23.7 ± 2.5	167	6.7 ± 0.6	126	1.7 ± 0.4
III	134	12.1 ± 11.0	157	7.9 ± 0.4	102	1.6 ± 0.3
IV	126	13.4 ± 11.7	154	3.7 ± 0.4	92	1.8 ± 0.4
V	104	19.8 ± 10.2	152	2.2 ± 0.6	84	1.9 ± 0.4
Female	44	23.2 ± 17.3	73	5.5 ± 0.9	36	3.4 ± 3.3
Male	42	24.2 ± 12.4	70	7.3 ± 0.4	30	4.3 ± 3.6

Zárate 1983, Braga et al. 1998, Cabello & Lizano 2001, Barbosa-Gomes & Garcia-da Silva 2001, Martínez-Ibarra et al. 2005). However, some studies about the *M. phyllosomus* complex have shown that even when some of these species (*M. longipennis, M. picturatus*) usually have egg hatching rates only slightly below to 80% (Martínez-Ibarra et al. 2003a, b, 2004), some other species of the complex (*M. pallidipennis, M. mazzottii*) have had lower egg hatching rates, even under 60%, (*M. pallidipennis*) depending on maintenance conditions (Malo et al. 1993, Martínez-Ibarra & Katthain-Duchateau 1999, Martínez-Ibarra & Novelo-López 2004, Martínez-Ibarra et al. 2005). Egg hatching rates above 90% in both cohorts of *M. mazzottii* on this current study, as well as egg hatching close to 80% on *M. phyllosomus* fed on hens and *M. bassolsae* fed on rabbits reflects how favorable were maintenance conditions for the proper development of triatomines.

On average, approximately 75% of I-IV instars, and 50% of V instar of both cohorts of *M. phyllosomus* required one and a half meals in order to molt to the next instars, whereas that percentages of both cohorts of *M. mazzottii* and of *M. bassolsae* required two and a half meals in order to molt to the next instars. Required number of blood meals to molt was similar to those required by other species of the *M. phyllosomus* complex, as *M. longipennis*, *M. picturatus*, *M. pallidipennis,* and *M. mazzottii*, maintained at similar conditions of temperature and humidity (Martínez-Ibarra et al. 2003a, b, 2004, 2005, Martínez-Ibarra & Novelo-López 2004). No significant ($p > 0.05$) differences were noticed when both cohorts of *M. phyllosomus* were compared among them, or both cohorts of *M. mazzotti* were compared one to each other or when both cohorts of *M. bassolsae* were compared among them. Slightly differences were recorded when cohorts of different species, fed on the same blood meal source were compared.

As for some other related species (*M. longipennis, M. picturatus, M. pallidipennis*), instar mortality on studied species had an irregular pattern (Martínez-Ibarra et al. 2003a, b, 2004, Martínez-Ibarra & Novelo-López 2004). Mortality in the youngest nymphs apparently was due to the incapacity of feeding by insects, since dead triatomines were found generally without significant intestinal content. On the other hand, mortality on older nymphs seems to be during their molting. No significant ($p > 0.05$) differences were recorded on the mortality rates when both cohorts of *M. phyllosomus* were compared among them, or when both cohorts of *M. mazzotii* were compared among them. Similarity on mortality rates among two cohorts of the same species fed on different blood meal sources was also observed on *Triatoma pseudomaculata* and *T. sordida* fed on pigeons and mice (Guarneri et al. 2000a, b), *M. picturatus* fed on hens and rabbits (Martínez-Ibarra et al. 2003b) and in *M. longipennis* fed on hens and rats (Martínez-Ibarra et al. 2004).

On the other hand, significant ($p < 0.05$) differences were recorded among cohorts fed on hens and that fed on rabbits in *M. bassolsae*. Significant ($p < 0.05$) differences were noticed between both cohorts of *M. phyllosomus* and the cohort of *M. bassolsae* fed on hens respect to both cohorts of *M. mazzottii*. The cohort of *M. bassolsae* fed on rabbits was significant ($p < 0.05$) different from remain five studied cohorts. Mortality rates in both cohorts of *M. phyllosomus* and *M. bassolsae* of this study were significantly ($p < 0.05$) higher than for other Mexican Triatominae species, such as *T. barberi* (Zárate 1983, Martínez-Ibarra et al. 2005), *M. mazzottii* (Malo et al. 1993), *M. pallidipennis* (Martínez-Ibarra & Katthain-Duchateau 1999), *M. dimidiatus* (Martínez-Ibarra et al. 2001), but mortality rates in both cohorts of *M. phyllosomus* and in the cohort of *M. bassolsae* fed on hens were according to most published data for some other species of the *M. phyllosomus* complex, as for *M. pallidipennis*, *M. longipennis* and *M. mazzottii* (Martínez-Ibarra & Novelo-López 2004, Martínez-Ibarra et al. 2004, 2005).

Mean feeding time was no significantly ($p > 0.05$) different when cohorts were compared by species (cohort fed on hens vs cohort fed on rabbits); they seemed not to be influenced by differences in the haemostatic mechanisms of birds and mammals, as Lehane (1991) reported. Both cohorts of *M. mazzottii* required longer time for engorging than both cohorts of *M. bassolsae* and both of *M. phyllosomus*, which required the shortest period of time. As well as mortality rates, all mean feeding time of the two cohorts of each of three studied species could be framed among published data for some other species of the *M. phyllosomus* complex, as for *M. longipennis*, *M. picturatus*, *M. mazzottii* in a previous study, and *M. pallidipennis* (Martínez-Ibarra et al 2003a, b, 2005, Martínez-Ibarra & Novelo-López 2004), all considered as important vectors of *T. cruzi* to human populations in Mexico.

Mean defecation delay was not significant ($p > 0.05$) different when cohorts fed on hens and fed on rabbits were compared. It was neither noticed any significant ($p > 0.05$) difference among both cohorts of *M. mazzottii* and both cohorts of *M. bassolsae*, independent of blood meal source. On the other hand, both cohorts of *M. mazzottii* and both cohorts of *M. bassolsae* took significant ($p < 0.05$) longer periods of time to defecate than both cohorts of *M. phyllosomus*.

According to Zeledón et al. (1977) those species that defecate in the first 5 to10 min after feeding could be considered potentially effective transmitters of *T. cruzi* to hosts, since they proposed that triatomines are usually in contact with their host at least that period of time. Taking in account that consideration, *M. mazzottii* as well as *M. bassolsae* could be considered as effective transmitters of *T. cruzi* as *T. infestans, Rhodnius prolixus, T. rubida sonoriana,* nymphs of *T. rubrovaria* (Pippin 1970, Zeledón et al. 1977, Almeida et al. 2005, Martínez-Ibarra et al 2005) and some related species of the *M. phyllosomus* complex, as *M. longipennis*, *M. picturatus*, *M. mazzottii* in a previous study, and *M. pallidipennis* (Martínez-Ibarra et al 2003a, b, 2005, Martínez-Ibarra & Novelo-López 2004).

Most of the studied parameters showed no significant ($p > 0.05$) differences among those cohorts fed on hens and for fed on rabbits, reflecting the possible association of those three studied species to mammals as much as to birds in wild ecotopes, which could facilitate their colonization of human dwellings in their distribution area. Results on the studied parameters added to the above facts, lead us to conclude, as suggested by previous field studies (Magallón-Gastélum et al. 1998, Alejandre-Aguilar et al. 1999, Ramsey et al. 2000), that *M. phyllosomus, M. mazzottii,* and *M. bassolsae* could be considered important potential vectors of *T. cruzi* to human population in those areas of Mexico where they are currently present.

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