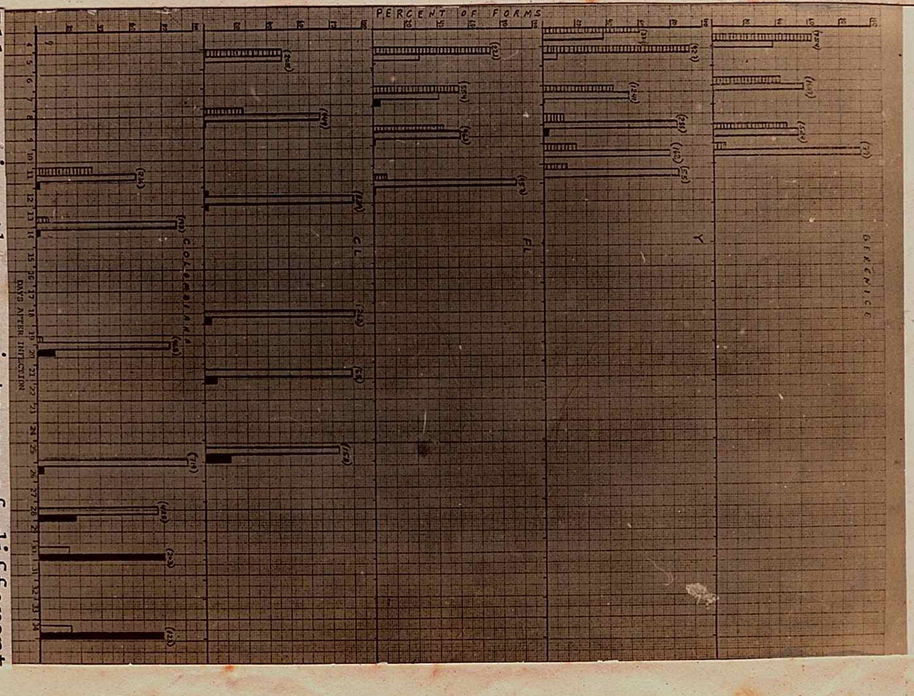
PROJETO 2 (1982)

RELAÇÃO HOSPEDEIRO-PARASITO

2.2. POLIMORFISMO EM T.CRUZI DE DIFERENTES CEPAS: Alina P.Szumlewicz, C.A.Muller e H.N.da Cruz, Lab. em Jacarepaguá, Instituto Oswaldo Cruz.

As evidências de que as variações morfológicas de tripomastigotos sanguíneos estão relacionados a diferenças fisiológicas (Brener e col.) levaram-nos a pensar em possíveis implicações desse fenômeno na evolução do parasito no invertebrado. Neste estudo se faz uma análise quantitativa das tres formas morfológicas do parasito; delgada, grossa e "stumpy". O material do qual temos nos servido é o mesmo que foi utilizado nas determinações de parasitemias e mortalidades produzidas pelas diferentes cepas em hospedeiros vertebrados (Subprojeto 2.1). O parasito no sangue periférico foi examinado após coloração que permite a sua exata identificação morfológica. A distribuição de formas, obedece um padrão relacionado com o curso da parasitemia, as formas delgadas predominando nos primeiros dias da infecção, na fase de ascenção da parasitemia. As formas grossas predominam nos últimos dias da infecção aguda, na fase do declínio da parasitemia. A avaliação quantitativa de níveis de formas morfológicas guardam também certa relação com o grau da virulência da cepa. Assim, Berenice, Y e FL com multiplicação rápida, piques parasíticos precoces e 100% de mortalidade coincidem com a predominância de formas delgadas. Nas infecções por cepas que apresentam multiplicação mais lenta com piques parasitêmicos irregulares e tardios, e mortalidades abaixo de 100%, predominam as formas grossas. Devido ao escasso parasitismo produzido pela cepa São Felipe, foi impossível fazer uma avaliação quantitativa das formas; num total de 55 formas de vários exames, 46 eram grossas, 7 delgadas e 2 "stumpy". As formas "stumpy", raramente ocorrem nas infecções com cepas de elevada virulência (Y, Berenice, FL), ao passo que nas infecções com Colombiana constituem a maioria (79%) no fim da fase patente da parasitemia.



Illustrating the coexistence of different morphologic forms, ▤ slender ☐ broad ■ stumpy of blood-stream T.cruzi. (Total number of trypomastigotes in brackets).

XXVII CONGRESSO DA SOCIEDADE BRASILEIRA DE MEDICINA TROPICAL
UBERABA, 24-28 de fevereiro de 1991

COMPARATIVE XENODIAGNOSIS IN HUMANS WITH CHRONIC CHAGAS'DISEASE FROM ENDEMIC AREAS IN BRAZIL.

Szumlewicz, A.P.; Muller, C.A.; Moreira, C.J.C.
Lab.de Vetores da Doença de Chagas, Deptº de Entomologia, IOC, FIOCRUZ,Rio de Janeiro, Brasil.

Workers predicted that the efficiency of xenodiagnosis could be increased by the use of large numbers of bugs per patient, by exposure of patients to repeated xenodiagnosis, or to simultaneous tests with several different vectors and by using vectors of epidemiological importance in the area where the patient lives, *T.infestans* in Argentina, Brazil, Chile and *R.prolixus* in Venezuela.

However, conflicting published data and their interpretation stimulated our long term study, results of which have been published in 1982, 1987, 1988 and 1990.

It has been repeatedly reported that it would be possible to upgrade the efficiency and reliability of the test by altering and/or improving procedures currently used.

It has been also demonstrated that the large numbers of the domiciliated vectors could be substituted by relatively low numbers of sylvatic or essentialy sylvatic bugs in process of adaptation to human houses.

Our recent studies implied the integration of parasite density in screening vectors for xenodiagnosis solely, not for use as a determining parameter. It is rather meant to help in the choice of an appropriate xenodiagnostic agent which, if capable of sustaining fast development and vigorous multiplication of the few parasites ingested from the chronic host, would leave less room for false negative cases.

Of the 11 vector species screened, five have been highly efficient xenodiagnostic agents, but only two, *P.megistus* and *T.vitticeps* have been singled out for routine use instead of *T.infestans*.

The present study is entirely devoted to verify whether these two vector species would be as efficient in detecting chronic cases in field surveys, as they have been found to be in uncovering experimental chronic cases in the laboratory.

An affirmative answer is being given by the results summarized in the table. Furthermore, *vitticeps* appears to be the insect model of choice, even superior than *megistus* stressed by us previously. However this finding awaits confirmation by results from simultaneous exposure of the same patients to *megistus* and *vitticeps*, thus seeking direct proofs versus the indirect seen in the table.

Patients	Tests	Percent positives among patients exposed simultaneously to two different vectors		
nr.	nr.	*T.infestans*	*T.vitticeps*	*P.megistus*
132	4	17.4	26.5	-
219	9	9.6	-	26.0

Datilografar [illegible] do espaço, em máquina elétrica, sem rasuras. Deixar margem de 0,5 cm em cada lado.
Enviar para [illegible] Tropical/FMTM - Caixa Postal 118 - Fax (034)312.6640 - CEP 38001 - Uberaba - MG.

OBSERVAÇÃO [illegible]: Preferíamos receber os resumos através de arquivo de computador (de preferência processador de texto WORD) para a Caixa Postal do SIM-400 nº 11696/FMTM. Consulte o Serviço de Processamento de Dados de sua Instituição ou a EMBRATEL local.

BR RJCOC PW.06.01.F3

XXV CONGRESSO DA SOCIEDADE BRASILEIRA DE MEDICINA TROPICAL

DOCUMENTO 05

FORMULÁRIO PARA A REPRODUÇÃO DE RESUMO DE TRABALHO

Informar se o trabalho será apresentado em Sessão de:

☐ Tema Livre

☐ Poster

Informar que equipamento audiovisual irá necessitar

☐ Projetor de slides

☐ Retroprojetor

☐ ____________

☐ (para uso da Secretaria)

IMPORTANTE - Leia todas as INSTRUÇÕES antes de datilografar o RESUMO.

EVALUATION OF VECTOR SPECIES EFFICIENCY FOR IDENTIFICATION OF INSECT MODELS FOR XENODIAGNOSIS IN HUMANS FROM ENDEMIC AREAS OF CHAGAS'DISEASE. Alina Perlowagora-Szumlewicz, Carlos Alberto Muller and Carlos José de Carvalho Moreira. - Laboratório de Vetores da Doença de Chagas, Deptº de Entomologia do Instituto Oswaldo Cruz, FIOCRUZ.

A number of experiments of interaction between different *T.cruzi* stocks (strains) and various vector species (sylvatic and domestic) in infectivity rates, found in bugs engorged from hosts with acute and chronic infections, have been analyzed and compared. The major biological point to emerge was the lack of vector species specificity in the reaction to infection. Nonetheless, bugs from xenodiagnosis could be divided in two distinct groups. While data give *megistus*,*neglectus*,*sordida*,*pseudomaculata*,*rubrovaria* a positive rating of over 70%, this is low in the domestic *infestans* and in *prolixus* and *dimidiata* which were found mobile between human homes, peridomestic areas and woodland. The consistancy of this phenomenon has been reemphasized in all successive reports of the long lasting study done to upgrade the efficiency of xenodiagnosis. Since observations were reproducible, the differences between infectivity rates in domestic and sylvatic bugs are valid,even so the nature of the reaction may not be understood. As yet, there is no evidence to support any other grouping of bugs. At most, one can speculate that the superiority of sylvatic bugs may stem from their long association with sylvatic mammals. Although the cited sylvatic vectors meet the standards established for efficient xenodiagnostic agents, *megistus* appeared to be the insect model of choice. However, people are reluctant to give up and separate themselves from their past concepts. Therefore preliminary results of a long-term field study on simultaneous xenodiagnosis in humans with the domestic *infestans* and sylvatic *megistus*, *vitticeps* and *neglectus* are presented.

Tests no.	Vectors species	Vectors no. exam.	Vectors no. pos.	Patients no. exam.	Patients no. pos.	Patients % pos.
9	*infestans*	4120	58	219	21	9.6
	megistus	3512	197	219	57	26
2	*infestans*	1013	11	62	7	11.3
	vitticeps	971	35	62	18	29
2	*infestans*	720	6	40	4	10
	neglectus	673	9	40	8	20

XXV CONGRESSO DA SOCIEDADE BRASILEIRA DE MEDICINA TROPICAL

COMPROVANTE DE ACEITAÇÃO DE RESUMO

Autor(es) — nome por extenso

Título do trabalho ____________

Secretaria

XXV CONGRESSO DA SOCIEDADE BRASILEIRA DE MEDICINA TROPICAL

COMPROVANTE DE ACEITAÇÃO DE RESUMO

Autor(es) — nome por extenso

Título do trabalho ____________

Secretaria

III Jornada Científica da Fundação Oswaldo Cruz

Rio de Janeiro
4 a 6 de março - 1985

Título: 1.-ASSESSMENT OF THE DEGREE OF RELATIONSHIP AMONG VARIOUS TRIATOMINE SPECIES THROUGH HYBRIDIZATION

Autor(es): Alina P.Szumlewicz with the technical assistance of Minervina V.Correia (Instituto Oswaldo Cruz)

Reproductive isolation is the basic concept in the study of speciation leading to species formation. Species, capable of crossing and producing viable offspring, are not reproductively isolated, a gen flow exist among them.

Experiments reported in 1976 demonstrated that crosses of *T. pseudomaculata* with *T.sordida* succeded well in both directions, while crosses with *T.infestans* and *T.brasiliensis* were successful only when *pseudomaculata* was used as the femal parent. Two *Rhodnius* species were also found to cross using *prolixus* as the female and *neglectus* as the male parent.

More recently we reported successful crosses in both directions between *T.rubrovaria* and *T.infestans*, while the crosses between *rubrovaria* and *sordida, pseudomaculata, brasiliensis* succeded well using *rubrovaria* as the female parent. Many adults of both sexes have been obtained but, while F_1 females have been fertile, as shown by backcrosses with parent males, the hybrid males have been sterile.

The succesful reciprocal crosses suggest the existance of a close relationship between the morphological different *triatomine* species, while the unilateral crosses argues for a more distant relationship.

Crossing study between *T.pessoai* with *infestans, rubrovaria* and *brasiliensis* are still quite incomplete, but data obtained sofar do permit some consideration as to the degree of genetic affinity between the four species. Crosses of *pessoai* with *rubrovaria* or *infestans* succeded well using *pessoai* as the male parent, while crosses between *pessoai* and *brasiliensis* succeded remarkable well in both directions, egg hatchability ranging from 32 to 40%. The eggs produced 207 vigorous adults, the sex ratio being 1.05. And furthermore, crosses between the adult hybrids (F_1) produced fertile progeny. It would appear that these two species have much in common.

In the crossings involving all species herein mentioned, *T.pessoai* and *T.brasiliensis* form the most closely related two species. They may not cross at all in nature, being kept apart by ecological or geographical barriers. Nonetheless, successful laboratory crosses resulting in fertile progeny of both sexes indicate close genetic affinities between *T.pessoai* and *T.brasiliensis*. Somente *T. vitticeps* mostrou-se uma espécie pura. Não houve eclosão alguma nas posturas provenientes de cruzamentos unilaterais e recíprocos com as demais espécies aqui estudadas. (Auxílio do CNPq).

DOCUMENTO 07

Interação vetor-parasito na evolução do tripomastigoto metacíclico.

Para diagnóstico seguro da infecção por T.cruzi recomenda-se que o material intestinal de triatomíneos seja examinado após a coloração que permita a distinção do metacíclico T.cruzi do T.rangeli e/ou B.triatomae que ocorre no tubo digestivo de certos triatomíneos, levando a resultados falso positivos em referência à infecção chagásica. Tornou-se, portanto, imprescindível a busca de um vetor cuja ecologia interna fosse favorável a rápida evolução e boa proliferação do parasito.

1. O presente trabalho relata o comportamento do parasito em 9 espécies vetoras (T.infestans, T.sordida, T.brasiliensis, T.pseudomaculata, T.rubrovaria, T.dimidiata, P.megistus, R.neglectus e R.prolixus) alimentadas uma única vez em cobaias infectados por 7 diferentes cepas do T.cruzi (Berenice, Y, FL, CL, Colombiana, São Felipe e Gávea). Os resultados foram avaliados através de determinações da percentagem da população parasitária que chega ao final da sua evolução, transformando-se em metacíclico.

Os resultados mostram que cada cepa do T.cruzi é capaz de se estabelecer em cada espécie vetora aqui estudada, porém para a sua evolução rápida e multiplicação maciça concorrem o fator cepa e o fator espécie do hospedeiro invertebrado. Por exemplo, as cepas Colombiana e Gávea apresentam boas taxas de metacíclicos em todas as espécies vetoras aqui estudadas, com exceção do T.pseudomaculata. Aliás, todas as 7 cepas apresentam baixas taxas de metacíclicos em T.pseudomaculata ao passo que, a evolução relativamente rápida e a multiplicação boa para as mesmas cepas ocorrem invariavelmente em R.neglectus e R.prolixus. Sendo o potencial infectante do primeiro superior ao do segundo, recomenda-se a utilização do R.neglectus no xenodiagnóstico do material proveniente de zonas onde ocorrem triatomíneos infectados por T.rangeli e/ou B.triatomae.

VECTOR-SPECIES AND PARASITE-STRAIN INTERACTION IN THE DEVELOPMENTAL COURSE OF METACYCLIC TRYPOMASTIGOTES WITH DURATION OF INFECTION

T.cruzi	Days in bug	R.prolixus	R.neglectus	P.megistus	T.infestans	T.brasilien	T.sordida	T.pseudomaculata	T.rubrovaria	T.dimidiata
		Per cent of metacyclic trypomastigotes in the bugs of the following triatomine species (counts of parasites)								
Berenice	30	17.0(135)	-	0(351)	0.8(121)	1.0(488)	0(182)	0(410)	0(111)	-
	60	-	-	0(255)	-	0(534)	0(55)	0(46)	2.4(542)	-
	90	17.0(96)	64.5(361)	0(355)	-	0(374)	0(455)	0.2(557)	0(506)	21.3(94)
	120	52.6(19)	7.4(298)	19.8(637)	10.8(463)	1.2(358)	3.5(227)	0(420)	8.2(356)	-
Y	30	0(279)	0.3(298)	0.2(469)	3.1(477)	5.2(328)	0.5(430)	0(180)	0(418)	3.9(77)
	60	0(212)	3.5(343)	0.8(506)	0(612)	2.9(1004)	7.3(520)	0(502)	2.0(662)	0.5(204)
	90	3.9(51)	1.1(469)	0.5(827)	-	0(386)	7.1(605)	0(743)	1.7(868)	12.4(315)
	120	53.5(523)	72.6(296)	7.4(758)	-	2.0(410)	11.6(568)	0(502)	7.5(824)	-
FL	30	0(258)	0.8(249)	0(657)	3.1(542)	0(544)	0(379)	0(547)	0(485)	-
	60	10.5(439)	13.2(121)	0(490)	0(450)	0.2(1065)	0.6(636)	0.7(713)	2.1(871)	0(234)
	90	1.1(90)	-	3.6(561)	0.8(605)	2.1(189)	0.2(817)	1.1(527)	5.3(751)	-
	120	23.1(579)	28.7(106)	8.6(631)	1.6(453)	13.1(831)	1.7(1271)	0(1000)	10.8(595)	0(215)
CL	30	28.3(212)	41.0(346)	0.3(394)	0(253)	0.2(450)	1.2(341)	0(329)	2.4(498)	-
	60	1.6(552)	30.7(199)	2.4(360)	1.5(272)	-	2.5(322)	0(288)	1.4(440)	4.6(22)
	90	92.5(214)	74.9(442)	33.3(589)	8.5(59)	0(64)	-	0(34)	25.0(611)	40.0(440)
	120	79.4(255)	87.4(199)	44.4(396)	51.3(482)	0.3(362)	2.9(309)	2.0(306)	18.5(364)	-
Colombiana	30	18.4(522)	45.7(392)	0(195)	13.7(740)	18.5(599)	2.0(500)	0.5(407)	9.5(622)	0(56)
	60	36.2(729)	10.5(409)	25.0(40)	2.3(345)	22.4(657)	19.0(568)	1.7(532)	30.9(1020)	15.8(423)
	90	76.4(355)	52.7(592)	31.7(41)	-	24.5(624)	0.9(427)	0.3(563)	58.4(659)	-
	120	75.8(331)	84.0(357)	56.8(519)	50.0(70)	49.8(438)	17.4(201)	3.1(322)	77.2(546)	86.5(563)
S. Felipe	30	5.3(263)	3.0(298)	4.4(296)	0.5(211)	0(361)	0.3(329)	14.0(157)	0.2(413)	1.7(59)
	60	35.6(422)	26.2(370)	2.9(310)	0(398)	41.5(528)	5.7(385)	-	0(483)	-
	90	-	24.4(197)	35.5(611)	-	0(530)	1.8(382)	0(512)	8.8(455)	57.4(343)
	120	22.4(250)	62.4(271)	41.4(495)	-	4.5(531)	4.4(410)	10.9(597)	26.5(552)	-
Gávea	30	2.6(454)	0.5(390)	0(523)	1.4(703)	0.2(421)	0(387)	0(76)	0(251)	[illegible](137)
	60	66.8(214)	58.3(331)	3.5(617)	-	6.4(406)	4.0(477)	0.5(440)	3.2(342)	-
	90	66.1(454)	34.2(368)	31.8(384)	44.6(220)	14.7(470)	22.5(472)	0.6(260)	42.0(495)	53.7(181)
	120	67.8(996)	65.7(887)	39.6(591)	-	52.4(401)	32.6(414)	0(701)	58.6(605)	40.9(115)

- Not computed because of small sample size

METACYCLOGENESIS OF *TRYPANOSOMA CRUZI* IN VIVO: WITH SPECIAL OBSERVATIONS ON THE VECTOR SPECIES-PARASITE RELATIONSHIP. Perlowagora-Szumlewicz Alina. Laboratório de Vetores da Doença de Chagas, Instituto Oswaldo Cruz, CEP 22700 Jacarepaguá, Rio de Janeiro, Brasil.

Trypanosoma cruzi can be cultured successfully in a variaty of media. Some of these have been co re mendet for production of high levels of metacyclic trypomastigotes. However, the study on their routin use for production of stage specific antigenes or biochemical factors, influencing morfogenesis of *T.cruzi*, should be extended to in vivo developed stages so that validity of using culture forms can be assessed adequately. Therefore the transformation of blood trypomastigotes into metacyclics was studied in 9 different vector species fed simultaneously on 9 guineapigs with acute infections by Y stock, starting with the 4th or 15 th day up to 150 or 240 days after infection. By this technique all stages present in the mixed population of overlapping generations, will be detected in the Giemsa stained smears prepared from the entire alimentary tract. By analyzing the biodynamics of all stages concurrently, the destiny of each one becomes visible. Distinction of stages on strict morphological criteria will be shown by photomicrographs. Quantitative data from all species will be discussed in detail somewhere else. Representative examples of vector species effect on metacyclogenesis is seen in the Table. The most striking fact to emerge is that there are vector species with almost pure populations of epimastigotes throughout the observations. In *T.pseudomaculata* the parasite population is formed by 79% to 98% of epimastigotes, while metacyclic forms varied from 0.2 to 16%. In sharp contrast to the *Triatoma* species, the proportion of metacyclic trypomastigotes in *Rhodnius* reached a maximum of 56% approximately. The intermediate max. yield of 27% was found in *megistus*. There is a striking similarity between the in vivo yield of 56% metacyclic trypomastigotes in *Rhodnius* here studied and that (64%) described by Wood and Souza (1976), after the addition of an extract (1%) of adult *prolixus* to an insect oriented culture system for *T.cruzi*. Although this quantity matched with that produced in vivo, the incubation time in the former was 14 days vs. 90 and 150 days in *prolixus* and neglectus respectively.

Per cent of evolutional forms found in bugs of different species at increasing intervals following infection

Parasite Days in bug	Number counted	Rounded forms amastigotes	Rounded forms spheromastigotes	Transition forms leading to epimastigotes	Epimastigotes	Transition forms leading to metacyclics	Metacyclic trypomastigotes
				R.prolixus			
4	85	10.6	8.2	76.4	4.7	0	0
8	197	1.5	14.2	55.9	27.4	1.0	0
15	300	31.7	5.3	42.4	19.0	1.7	0
30	200	0.5	5.5	7.5	56.5	28.5	1.5
45	152	0	0	0	85.6	14.5	0
60	170	0.6	0.6	0	63.6	35.3	0
90	300	0.3	2.0	1.0	16.7	24.7	55.4
120	32	0	0	3.1	25.1	15.6	56.3
150	12						
180	37	0	0	0	51.4	48.7	0
210	436	0	0	0	50.0	4.8	45.2
				R.neglectus			
4	267	1.5	4.1	67.1	26.9	0.4	0
8	498	1.0	2.6	39.9	55.0	1.4	0
15	530	0.2	0.6	14.7	78.7	5.8	0
30	328	1.5	1.8	0.3	83.8	6.7	5.8
45	330	0.6	0	0.6	74.3	14.5	10.0
60	390	0.3	0.3	0	78.4	20.5	0.5
90	360	0.8	1.4	1.7	19.7	56.1	20.3
120	500	0	0.4	0	44.8	8.4	46.4
150	398	0	0.8	0	34.2	12.8	52.3
180	722	0	0	0	42.8	7.9	49.3
210	623	0	0.2	0	36.5	4.0	59.4
240	889	0	0	0.1	51.3	19.9	28.7
				P.megistus			
4	183	5.5	4.9	48.1	40.9	0.5	0
8	283	2.5	1.4	21.2	72.8	2.1	0
15	369	5.1	2.7	0.8	87.2	4.1	0
30	303	2.3	1.6	1.0	90.1	4.9	0
45	330	6.1	1.5	1.5	82.7	6.7	1.5
60	310	0	0.3	0	78.3	21.3	0
90	310	0.3	0	0	55.8	21.3	22.6
120	567	0.5	0.7	0	73.9	14.6	10.2
150	497	0.2	0.2	0.2	79.0	9.5	10.1
180	549	0	0.4	0	68.1	4.4	27.1
210	559	0.7	1.8	0.2	74.5	3.8	19.1
240	349	0	0.9	1.2	78.2	14.3	5.4
				T.pseudomaculata			
15	229	10.9	1.7	48.9	38.5	0	0
30	318	2.2	3.1	0.6	84.9	8.5	0.6
45	317	0.9	0	1.5	88.3	9.1	0
60	300	0	0.3	1.0	97.7	1.0	0
90	334	0	5.1	2.4	78.8	12.6	1.2
120	588	0.5	1.0	0	92.2	6.3	0
150	265	1.1	3.0	1.9	80.4	10.6	3.0
180	574	1.1	0.5	1.4	95.6	1.1	0.4
210	632	4.1	1.1	0.8	89.0	3.0	1.9
240	593	0.3	0.2	0.3	60.9	21.9	16.4

On the poor yield of metacyclics in *Triatoma* species, one can speculate on a possible interaction of lectins, present in the intestinal tract of certain vectors species (Pereira, et al.1981, Sher & Snary, 1982) with the surface membrane of the epimastigote, inhibiting its transition into a metacyclic trypomastigote.

4.COMPARATIVE XENODIAGNOSIS WITH 11 DIFFERENT VECTOR SPECIES IN HOSTS WITH EXPERIMENTAL CHRONIC INFECTIONS BY SEVEN DIFFERENT *T.CRUZI* STRAINS

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The key issue of an efficient xenodiagnostic test which calls for identification of an insect model able to support high proportions of the parasite populations has been studied. The first part referred to bugs engorged from hosts with acute infections was published in 1988. The follow-up study associated with bugs of the same species engorged from the same animals which have recovered from the acute infection and continued with an inapparent infection throughout their life is described. The most relevant findings that emerged from the former study was the strikingly uniform and high infectivity rates in all vector populations, but the domiciliated ones, to the acute infections by Berenice, Y, FL, CL, São Felipe and Gávea, thus reinforcing what we recognized, right at the beginning of experiments as a constant phenomenon, the relative low infectivity exhibited by domiciliated vectors. But the proportion of positives in the 11 vector populations fed on chronic hosts was neither uniform nor as high as found in bugs engorged from hosts with acute infections by the same parasite strains. For example, while the proportion of positives in all sylvatic bugs, engorged from hosts with an acute infection by Colombiana strain ranged from 90.6% to 100%, it shrinked dramatically to 12.5%-27.8%, when fed on the same hosts with chronic infections. By contrast the infectivity rates exhibited by all sylvatic bugs engorged from hosts with acute infections by São Felipe strain ranged from 78.1% to 100% and practically maintained this level (82.5-98%) when fed on hosts with chronic infections by the same parasite. Infectivity rates in *P.megistus* exposed to hosts with acute infections by six different parasite strains ranged from 96.9% to 100%, it shrinked to a level varying from 25.0% to 96.3% when fed on the same hosts after they have recovered from the acute infections. These few examples failed to illustrate the full range of vector parasite interaction in bugs fed on chronic hosts that will be discussed in the paper. Nevertheless the anticipated suggestion is that two distinct mechanisms involved in vector parasite interaction are strictly associated with the parasite strain. One is the rate of its utilization of resources present in the vector, the other is determined by intrinsic components of ~~the parasite, the principal being its ability to fast development and multiplication. This study~~ is almost unique in containing data on both, the infectivity of the same parasite strain in different vector populations and the infectivity in the same vector species exposed to different parasite strains. That however has not reversed our previous positions, taken when infectivity rates in nine different vector population, produced by Y strain solely, have been studied (1982,1987). Nonetheless additional biological insights became available when more than one parasite strain have been studied. It became also clear that the choice of an experimental insect model for xenodiagnosis cannot be based on records of screening two different species from two different biotopes.