

Bulletin of Insectology Supplemental Material

Title: **Infertile egg production in the lady beetle *Eriopis connexa***

Authors: **Alessandra C. G. SILVA, Christian S. A. SILVA-TORRES, Ellen K. S. FERREIRA, Deivid V. NASCIMENTO, Jorge B. TORRES**

Bulletin of Insectology, Volume 75 June 2022 pages 59-70

Table S1. Numbers of infertile eggs estimated as the difference between egg hatch (%) as published in different studies run with the resistant and susceptible studied *E. connexa* phenotypes, and undefined phenotype.

Prey used and treatments	Egg infertility (100-% hatching)	References
<i>E. connexa</i> susceptible phenotype (Sus)		
<i>Ephestia kuehniella</i> (Ek) eggs F19	100-51.3 (48.7)	Santos <i>et al.</i> , 2016
Ek eggs F24	100-43.9 (56.1)	Santos <i>et al.</i> , 2016
Ek eggs F29	100-39.3 (60.7)	Lira <i>et al.</i> , 2016
Ek eggs field collected (F1)	100-67.3 (32.7)	Lira <i>et al.</i> , 2016
Ek eggs F78	100-31.9 (68.1)	Rodrigues <i>et al.</i> , 2020
Ek eggs F94	100-51.0 (49.0)	Nascimento <i>et al.</i> , 2021
Ek eggs + <i>P. xylostella</i> (Px) larvae	100-56.0 (44.0)	Nascimento <i>et al.</i> , 2021
<i>Lipaphis pseudobrassicae</i> (Lp)	100-57.1 (42.9)	Nascimento <i>et al.</i> , 2021
Alternated prey Ek-Px-Lp	100-52.4 (47.6)	Nascimento <i>et al.</i> , 2021
Ek eggs	100-32.2 (67.8)	Ferreira <i>et al.</i> , 2013
Ek eggs and paired once with virgin male	100-82.2 (17.8)	Colares <i>et al.</i> , 2015
Ek eggs and paired continuously	100-68.7 (31.3)	Colares <i>et al.</i> , 2015
Ek eggs and paired w/different virgin males	100-77.8 (22.2)	Colares <i>et al.</i> , 2015
Ek eggs and paired w/different mated males	100-68.6 (31.4)	Colares <i>et al.</i> , 2015
Ek eggs and untreated	100-65.1 (34.9)	Costa <i>et al.</i> , 2020
Ek eggs and treated 0.08 g i.a./L spinetoram	100-70.5 (29.5)	Costa <i>et al.</i> , 2020
Ek eggs and treated 0.12 g i.a./L spinetoram	100-65.2 (30.8)	Costa <i>et al.</i> , 2020
Ek eggs and treated 0.24 g i.a./L spinetoram	100-56.2 (43.8)	Costa <i>et al.</i> , 2020
Average (\pm 95% CI)	42.2 \pm 6.77	
<i>E. connexa</i> resistant phenotype (Res)		
Ek eggs and untreated	100-47.9 (52.1)	Santos <i>et al.</i> , 2016b
Ek eggs and recovered from kd 24h	100-47.8 (52.2)	Santos <i>et al.</i> , 2016b
Ek eggs and untreated	100-33.0 (67.0)	Santos <i>et al.</i> , 2016b
Ek eggs and recovered from kd 24h	100-41.2 (58.8)	Santos <i>et al.</i> , 2016a
Ek eggs and recovered from kd 48h	100-33.0 (67.0)	Santos <i>et al.</i> , 2016a
Ek eggs and recovered from kd 72h	100-28.0 (72.0)	Santos <i>et al.</i> , 2016a
Ek eggs F40	100-44.8 (55.2)	Lira <i>et al.</i> , 2016
Ek eggs and from crossing Sus-F38 x Res-F40	100-75.9 (24.1)	Lira <i>et al.</i> , 2016
Ek eggs F45	100-71.9 (28.1)	Lira <i>et al.</i> , 2016
Ek eggs and from crossing Sus-F1 x Res-F45	100-75.9 (24.1)	Lira <i>et al.</i> , 2016
Ek eggs and selected F78	100-39.2 (60.8)	Rodrigues <i>et al.</i> , EEA
Ek eggs and unselected for 6 generations	100-43.0 (57.0)	Rodrigues <i>et al.</i> , EEA
Ek eggs F9	100-24.6 (75.4)	Ferreira <i>et al.</i> , 2013
Ek eggs and treated with dose 0.05 mg a.i./L lambda-cyhalothrin	100-31.4 (68.6)	Ferreira <i>et al.</i> , 2013
Ek eggs and treated with dose 0.10 mg a.i./L lambda-cyhalothrin	100-33.3 (66.7)	Ferreira <i>et al.</i> , 2013
Ek eggs and treated with dose 0.25 mg a.i./L lambda-cyhalothrin	100-43.5 (56.5)	Ferreira <i>et al.</i> , 2013
Ek eggs and untreated	100-76.1 (23.9)	Costa <i>et al.</i> , 2020
Ek eggs and treated 0.08 g i.a./L spinetoram	100-65.8 (34.2)	Costa <i>et al.</i> , 2020
Ek eggs and treated 0.12 g i.a./L spinetoram	100-69.8 (30.2)	Costa <i>et al.</i> , 2020
Ek eggs and treated 0.24 g i.a./L spinetoram	100-60.2 (39.8)	Costa <i>et al.</i> , 2020
Average (\pm 95% CI)	50.7 \pm 7.71	
<i>E. connexa</i> undefined phenotype		
Fed <i>Diatraea saccharalis</i> eggs	100- 36.4 (63.6)	Silva <i>et al.</i> , 2010a
Fed <i>Schizaphis graminum</i>	100-45.1 (54.9)	Silva <i>et al.</i> , 2010b
Fed Ek eggs	100-84.5 (15.5)	Zazyckia <i>et al.</i> , 2015
Fed <i>Myzus persicae</i> and <i>Toxoptera aurantii</i>	100-70.0 (30.0)	Gómez and Polania, 2009
Fed <i>Aphis gossypii</i> reared on cotton BRS Rubi	100-69.1 (30.9)	Correa <i>et al.</i> , 2014
Fed <i>A. gossypii</i> reared on cotton BRS Safira	100-65.2 (34.8)	Correa <i>et al.</i> , 2014
Fed <i>A. gossypii</i> reared on cotton BRS Verde	100-49.9 (50.1)	Correa <i>et al.</i> , 2014
Fed <i>Drosophila melanogaster</i> larvae	100-62.8 (33.8)	Almeida <i>et al.</i> , 2021
Fed Ek eggs	100-69.4 (30.6)	Almeida <i>et al.</i> , 2021
Fed <i>Macrosiphum rosae</i>	100-58.7 (41.3)	Pereira, 2017
Average (\pm 95% CI)	38.5 \pm 8.76	

References

- ALMEIDA D. P., BERBER G. C. M., AGUIAR-MENEZES E. L., RESENDE A. L. S., 2021.- Evaluation of biological parameters of *Eriopis connexa* (Germar, 1824) and *Coleomegilla maculata* (DeGeer, 1775) (Coleoptera: Coccinellidae) fed with alternative prey developed at the Integrated Center for Pest Management - UFRRJ.- *Scientific Electronic Archives*, 14 (1): 8-16.
- COLARES F., MICHAUD J. P., TORRES J. B., SILVA-TORRES C. S. A., 2015.- Polyandry and male mating history affect the reproductive performance of *Eriopis connexa* (Coleoptera: Coccinellidae).- *Annals of the Entomological Society of America*, 108 (5): 736-742.
- CORREA L. R. B., CIVIDANES F. J., GONTIJO L. M., SANTOS-CIVIDANES T. M., 2014.- Effects of cotton cultivars differing in gossypol content on the quality of *Aphis gossypii* as prey for two species of Coccinellidae.- *Biocontrol Science and Technology*, 24 (12): 1439-1450.
- COSTA P. M. G., SANTOS R. L., NASCIMENTO D. V., TORRES J. B., 2020.- Does spinetoram pose low risk to the neotropical lady beetle *Eriopis connexa* (Coleoptera: Coccinellidae)?- *Phytoparasitica*, 48: 491-499.
- FERREIRA E. S., RODRIGUES A. R. S., SILVA-TORRES C. S. A., TORRES J. B., 2013.- Life-history costs associated with resistance to lambda-cyhalothrin in the predatory ladybird beetle *Eriopis connexa*.- *Agricultural and Forest Entomology*, 15 (2): 168-177.
- GÓMEZ W. D., POLANÍA I. Z., 2009.- Tabla de vida del cucarrón depredador *Eriopis connexa connexa* (Germar) (Coleoptera: Coccinellidae).- *Revista UDCA Actualidad & Divulgacion Científica*, 12 (2): 147-155.
- LIRA R., RODRIGUES A. R. S., TORRES J. B., 2016.- Fitness advantage in heterozygous ladybird beetle *Eriopis connexa* (Germar) resistant to lambda-cyhalothrin.- *Neotropical Entomology*, 45 (5): 573-579.
- NASCIMENTO D. V., LIRA R., FERREIRA E. K. S., TORRES J. B., 2021.- Performance of the aphidophagous coccinellid *Eriopis connexa* fed on single species and mixed-species prey.- *Biocontrol Science And Technology*, 31 (9): 951-963.
- PEREIRA L. P. S., 2017.- Aspectos biológicos e consumo de *Cycloneda sanguinea* e *Eriopis connexa* (Coleoptera: Coccinellidae) alimentadas com *Macrosiphum rosae* (Hemiptera: Aphididae) em Roseira. *Dissertação de Mestrado*.- UFLA, Larvas, MG, Brazil.
- RODRIGUES A. S., GUEDES R. N. C., SIQUEIRA H. Á. A., TORRES J. B., 2020.- Stability of the resistance to lambda-cyhalothrin in the ladybird beetle *Eriopis connexa*.- *Entomologia Experimentalis et Applicata*, 168 (8): 644-652.
- SANTOS D. S., RODRIGUES A. R. S., TORRES J. B., LIRA R., 2016.- Performance of *Eriopis connexa* (Coleoptera: Coccinellidae) resistant to lambda-cyhalothrin after extended recovery from knockdown.- *Neotropical Entomology*, 45 (6): 718-724.
- SANTOS E. A., COSTA P. M. G., TORRES J. B., SILVA-TORRES C. S. A., 2016.- Use of prey and non-prey food by the ladybird beetle *Eriopis connexa* (Coleoptera: Coccinellidae) under laboratory-rearing conditions.- *Biocontrol Science and Technology*, 26 (9): 1184-1196.
- SILVA R. B., CRUZ I., FIGUEIREDO M. L. C., TAVARES W. S., FERREIRA C. F., REDOAN A. C., 2010a.- Fecundidade e fertilidade de *Eriopis connexa* (Germar) (Coleoptera: Coccinellidae) com ovos de *Diatraea saccharalis* Fabr. (Lepidoptera: Crambidae), pp. 435-439. In: *28º Congresso Nacional de Milho e Sorgo, 2010, Goiânia: Associação Brasileira de Milho e Sorgo*, Embrapa Milho e Sorgo, Sete Lagoas, MG, Brazil.
- SILVA R. B., CRUZ I., FIGUEIREDO M. L. C., TAVARES W. S., FERREIRA C. F., REDOAN A. C., 2010b.- Aspectos reprodutivos de *Eriopis connexa* (Germar) (Coleoptera: Coccinellidae) com ninfas de *Schizaphis graminum* (Rondani) (Hemiptera: Aphididae), pp. 236-241. In: *28º Congresso Nacional de Milho e Sorgo, 2010, Goiânia: Associação Brasileira de Milho e Sorgo*, Embrapa Milho e Sorgo, Sete Lagoas, MG, Brazil.
- ZAZYCKIA L. C. F., SEMEDO R. E. S., SILVA A., BISOGNIN A. Z., BERNARDI O., GARCIA M. S., NAVA D. E., 2015.- Biology and fertility life table of *Eriopis connexa*, *Harmonia axyridis* and *Olla v-nigrum* (Coleoptera: Coccinellidae).- *Brazilian Journal of Biology*, 75: 969-973.