



**A NEW HOST RECORD FOR THE EGG PARASITOID  
ANAGRUS NIGRIVENTRIS (HYMENOPTERA:  
MYMARIDAE) OF THE CORN LEAFHOPPER, DALBULUS  
MAIDIS (HEMIPTERA: CICADELLIDAE)**

Authors: Albarracin, Erica Luft, Virla, Eduardo G., and Triapitsyn, Serguei V.

Source: Florida Entomologist, 89(2) : 284-285

Published By: Florida Entomological Society

URL: [https://doi.org/10.1653/0015-4040\(2006\)89\[284:ANHRFT\]2.0.CO;2](https://doi.org/10.1653/0015-4040(2006)89[284:ANHRFT]2.0.CO;2)

---

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at [www.bioone.org/terms-of-use](http://www.bioone.org/terms-of-use).

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

---

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

## A NEW HOST RECORD FOR THE EGG PARASITOID *ANAGRUS NIGRIVENTRIS* (HYMENOPTERA: MYMARIDAE) OF THE CORN LEAFHOPPER, *DALBULUS MAIDIS* (HEMIPTERA: CICADELLIDAE)

ERICA LUFT ALBARRACIN<sup>1</sup>, EDUARDO G. VIRLA<sup>1</sup> AND SERGUEI V. TRIAPITSYN<sup>2</sup>

<sup>1</sup>PROIMI-Biotecnología, Div. Control Biológico, Av. Belgrano y Pje. Caseros (T4001 MVB)  
San Miguel de Tucumán, Tucumán, Argentina

<sup>2</sup>University of California, Department of Entomology, Riverside, CA 92521, USA

The corn leafhopper, *Dalbulus maidis* (DeLong & Wolcott), is the most common leafhopper feeding on corn in Argentina. It causes great losses to corn crop in most tropical and subtropical Americas because of its ability to transmit three important pathogens: Corn stunt spiroplasma (CSS), Maize bushy stunt phytoplasma (MBSP), and Maize rayado fino virus (MRFV) (Nault & Ammar 1989; Oliveira et al. 1998). The diseases caused by these pathogens adversely affect the corn crop in Argentina (Giménez Pecci et al. 1998, 2002a, b; Virla et al. 2004).

Until now, six species of parasitoids were known from eggs of *D. maidis*: *Anagrus breviphragma* Soyka, *A. flaveolus* Waterhouse, *Anagrus* sp. (Mymaridae), and *Paracentrobia subflava* (Girault), *Paracentrobia* sp., and *Oligosita* sp. (Trichogrammatidae) (Marín 1987; De Santis et al. 1992; Gladstone et al. 1994; Triapitsyn 1997; Oliveira & Spotti Lopez 2000; Virla 1999, 2001).

Representatives of Mymaridae, particularly *Anagrus* spp., have been utilized in several instances for the biological control of crop pests. Twelve described species of *Anagrus* Haliday occur in Argentina (Triapitsyn 1997, 1999, 2002; Triapitsyn & Virla 2004). Of these, *A. breviphragma* and *A. flaveolus*, are mentioned as affecting *D. maidis* populations (Triapitsyn 1997; Virla 2001, 2004).

The eggs of *D. maidis* are imbedded in the corn tissues, mostly along the midrib on the top side of the leaf (Pitre 1967). Sentinel eggs of *D. maidis* were exposed to parasitization in a cornfield from December 2004 to April 2005 at "El Manantial" site (Tucumán Province, Argentina: latitude 26°49'50.2"S, longitude 65°16'59.4"W, elevation 495 m). Potted plants containing sentinel eggs were placed inside the cornfield at no more than 3 m from the edge of the field.

In the laboratory, 6-10 females of *D. maidis* were placed in Polyethylene-Terephthalate cylindrical cages (35 cm high × 18 cm diameter) on corn leaves in order to obtain sentinel eggs. The *D. maidis* colony was maintained at room temperature (25 ± 4°C), 70-80% RH, with natural summer photoperiod. Potted corn plants in the vegetative stage (three to six leaves) were checked daily for eggs. Eggs less than 24 h old were exposed for 72-96 h. After eight days, the leaves

with exposed eggs were cut from the plant and transferred to Petri dishes containing wet tissue paper on the bottom and covered with a clear plastic food wrap to avoid desiccation and to keep parasitoids from escaping. Parasitized eggs were checked daily to ensure leaf quality until the emergence of adult wasps.

In total, 13828 (58.1%) of 23781 eggs were parasitized. One of the parasitoids was the mymarid wasp *Anagrus nigriventris* Girault (with 7.2% of the total egg parasitism). It is the first record of the corn leafhopper as a natural host for this species of *Anagrus*. Due to the importance of the diseases vectored by the corn leafhopper in the Americas, *A. nigriventris* should be properly evaluated as a potential biological control agent against this leafhopper pest.

*Anagrus nigriventris*, *A. breviphragma*, and *A. flaveolus* can be distinguished with the keys by Triapitsyn (1997, 1999, 2002). *Anagrus nigriventris* is one of the most common mymarid species in the New World, and has been recorded from Argentina, Brazil, Canada, Chile, Mexico, Peru, Trinidad, Tobago, and USA (throughout, including Hawaii) (Triapitsyn 1997, 1999, 2002). Its other hosts include the leafhoppers, *Aceratagallia* spp., *Circulifer tenellus* (Baker), *Empoasca fabae* (Harris), *E. solana* DeLong, *Empoasca* spp., *Erythro-neura comes* (Say), *Scaphytopius nitridus* (DeLong) (Triapitsyn & Moratorio 1998), and the mirid bug, *Pycnoderes quadrimaculatus* Guérin-Méneville (Triapitsyn 1997).

Voucher specimens of *A. nigriventris* resulting from this study are deposited in the collections of the Entomology Research Museum, University of California at Riverside, USA (UCRC) and Fundación e Instituto Miguel Lillo at San Miguel de Tucumán, Argentina (IMLA).

This work was supported by FONCYT-PICT project No 08-15029. Erica Luft Albarracin is a CONICET fellowship holder.

### SUMMARY

A survey of the eggs parasitoids of the corn leafhopper, *Dalbulus maidis* (DeLong & Wolcott) was carried out in Tucumán Province, Argentina. Samples were collected during the summer of 2004-2005 with sentinel eggs. *Anagrus nigriventris* Gi-

rault was responsible for 7.2% of the total egg parasitism. That is the first record of this parasitoid reared from the eggs of *D. maidis*; *A. nigriventris* is one of three species of *Anagrus* known to affect populations of this leafhopper pest in Argentina.

## REFERENCES CITED

- CHIAPPINI, E., S. V. TRIAPITSYN, AND A. DONEV. 1996. Key to the Holarctic species of *Anagrus* Haliday (Hymenoptera: Mymaridae) with a review of the Nearctic and Palaearctic (other than European) species and descriptions of new taxa. *J. Nat. Hist.* 30: 551-595.
- DE SANTIS, L., E. VIRLA, AND R. MARAGLINO [sic] [Maragliano]. 1992. Presencia de *Anagrus flaveolus* en la Argentina parasitoides de un insecto dañino del trigo y maíz (Insecta - Hymenoptera - Mymaridae). *Rev. Fac. Agronom.* 13(1): 19-23.
- GIMÉNEZ PECCI, M., E. OLIVEIRA, R. RESENDE, I. LAGUNA, L. CONCI, A. AVILA, P. HERRERA, E. GALDEANO, E. VIRLA, AND C. NOME. 2002. Ocorrença de Doenças causadas por mollicutes e por vírus em milho nas províncias de Tucumán e de Córdoba na Argentina. *Fitopat. Brasileira* 27: 403-407.
- GLADSTONE, S., A. DE LA LLANA, R. RIOS, AND L. LOPEZ. 1994. Egg parasitoids of the corn leafhopper *Dalbulus maidis* (De Long & Wolcott) (Homoptera: Cicadellidae) in Nicaraguan maize. *Proc. Entomol. Soc. Washington* 96: 143-146.
- MARÍN, R. 1987. Biología y comportamiento de *Dalbulus maidis* (Homoptera: Cicadellidae). *Rev. Peruana Entomol.* 30: 113-117.
- MEYERDIRK, D. E., AND M. S. MORATORIO. 1987. Biology of *Anagrus giraulti* (Hymenoptera: Mymaridae), an egg parasitoid of the beet leafhopper, *Circulifer tenellus* (Homoptera: Cicadellidae). *Ann. Entomol. Soc. America* 80(2): 272-277.
- NAULT, L. R., AND D. AMMAR. 1989. Leafhopper and planthopper transmission of plant viruses. *Annu. Rev. Entomol.* 34: 503-529.
- OLIVEIRA, C., AND J. SPOTTI LOPEZ. 2000. Parasitoides de ovos da cigarrinha-do-milho, *Dalbulus maidis* (DeLong & Wolcott) (Hemiptera: Cicadellidae), em Piracicaba. *Rev. Agric.* 75: 263-270.
- PITRE, H. N. 1967. Greenhouse studies of the host range of *Dalbulus maidis*, a vector of the Corn Stunt Virus. *J. Econ. Entomol.* 60 (2): 417-421.
- TRIAPITSYN, S. V. 1997. The genus *Anagrus* (Hymenoptera: Mymaridae) in America south of the United States: a review. *CEIBA* 38(1): 1-12.
- TRIAPITSYN, S. V. 1999. A review of the species of *Anagrus* Haliday, 1833 (Hymenoptera: Mymaridae) collected by A. A. Ogloblin in Argentina. *Russian Entomol. J.* 8(3): 213-222.
- TRIAPITSYN, S. V. 2002. Descriptive notes on a new and other little known species of *Anagrus* Haliday, 1833 (Hymenoptera: Mymaridae) from the New World tropics and subtropics. *Entomotropica* 17(3): 213-223.
- TRIAPITSYN, S. V., AND J. W. BEARDSLEY. 2000. A review of the Hawaiian species of *Anagrus* (Hymenoptera: Mymaridae). *Proc. Hawaiian Entomol. Soc.* 34: 23-48.
- TRIAPITSYN, S. V., AND M. S. MORATORIO. 1998. Host associations of *Anagrus nigriventris* Girault (Hymenoptera: Mymaridae) and techniques for its rearing under insectary conditions, pp. 185-191 *In* S. A. Hassan [ed.], *Egg Parasitoids*. 5th International Symposium. International Organization for Biological Control, Cali, Columbia, March 1998. *Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, H.* 356. Parey Buchverlag Berlin.
- TRIAPITSYN, S. V., AND E. G. VIRLA. 2004. A new *Anagrus* (Hymenoptera: Mymaridae) from Argentina, an egg parasitoid of *Delphacodes sitarea* (Hemiptera: Archaeorrhyncha: Delphacidae). *Florida Entomol.* 87(3): 383-385.
- VIRLA, E. 1999. Aportes acerca de la bionomía de *Paracentrobia subflava* (Hymenoptera: Trichogrammatidae), parasitoides de Hemipteros Cicadeloideos argentinos. *Rev. Soc. Entomol. Argentina* 58(3-4): 17-22.
- VIRLA, E. 2001. Notes on the biology of *Anagrus breviphragma* (Hymenoptera: Mymaridae), natural enemy of the corn leafhopper *Dalbulus maidis* (Hemiptera: Cicadellidae) and other plant diseases vectors in South America. *Bol. Sanidad Veg. "Plagas"* 27(2): 239-247.
- VIRLA, E., C. DÍAZ, P. CARPANE, I. LAGUNA, J. RAMALLO, L. GÓMEZ, AND M. GIMÉNEZ PECCI. 2004. Evaluación preliminar de la disminución en la producción de maíz causada por el "Corn Stunt Spiroplasma" (CSS) en Tucumán, Argentina. *Bol. Sanidad Veg. "Plagas"* 30: 403-413.