

New Hosts, Host Plants, and Distribution Records for Horismenus (Hymenoptera: Eulophidae) Species in a Bruchid Beetle Parasitoid Guild Attacking Wild Type *Phaseolus Coccineus* and *P. Vulgaris* in Central Mexico

Author: Bonet, Arturo

Source: Florida Entomologist, 91(4) : 698-701

Published By: Florida Entomological Society

URL: <https://doi.org/10.1653/0015-4040-91.4.698>

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.

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.

NEW HOSTS, HOST PLANTS, AND DISTRIBUTION RECORDS FOR *HORISMENUS* (HYMENOPTERA: EULOPHIDAE) SPECIES IN A BRUCHID BEETLE PARASITOID GUILD ATTACKING WILD TYPE *PHASEOLUS* *COCCINEUS* AND *P. VULGARIS* IN CENTRAL MEXICO

ARTURO BONET

Instituto de Ecología A. C. km 2.5 antigua carretera a Coatepec No. 351,
Apdo. postal 63, 91000 Xalapa, Veracruz, México
e-mail: arturo.bonet@inecol.edu.mx

The 62 described species of parasitoids and hyperparasitoids of the genus *Horismenus* Walker (Hymenoptera: Eulophidae) attack Lepidoptera, Coleoptera, and Hymenoptera larvae; which are either primary or secondary hosts. The host plants in which they can be found correspond to some 10 angiosperm families distributed along 14 countries of the Neotropical region (Noyes 2003).

While examining material from the entomology collection of the Instituto de Ecología A. C. in Xalapa, Veracruz, Mexico (IEXA), we found that specimens of *Horismenus* species had labels with information on hosts, host plants, and distribution records which are definitely new for the genus. Those insects are the result of 25 years of collecting wild type and cultivated bean pods of *Phaseolus coccineus* L. and *P. vulgaris* L. (Leguminosae: Papilionoideae), throughout the state of Mexico (Estado de México), Morelos, and Puebla to study the infesting rates of *Acanthoscelides obtectus* (Say) and *A. obvelatus* Bridwell (Chrysomelidae: Bruchinae), and its naturally associated parasitoids.

The specimens described herein were obtained from isolated seeds in which a bruchid host and *Horismenus* parasitoids emerged in the same seed. Although, Hansson et al. (2004) identified 4 species of *Horismenus* in the bruchid beetle parasitoid guild on wild type beans, they did not record specific hosts and host plants. Both *Acanthoscelides* spp. and *Phaseolus* spp. can be found at the same time in some localities. It is possible that the analyzed specimens emerged from grouped samples of seeds; thus, it was difficult to certify the specific record. The aim of this note is to record these new specific hosts, host plants, and distribution records from the material deposited in IEXA. We followed Hansson et al. (2004) and identified 131 specimens of 4 *Horismenus* species. Records of *P. coccineus* are from the grouped seed samples where both bruchids and other parasitoids could emerge.

The 4 *Horismenus* species (*H. butcheri* Hansson, Aebi & Benrey, *H. depressus* Gahan, *H. missouriensis* (Ashmead), *H. productus* (Ashmead)) attacked indiscriminately *A. obtectus* and *A. obvelatus* Bridwell on *P. coccineus* subsp. *coccineus* and *P. vulgaris* var. *mexicanus* Delgado. Wild type beans of *P. vulgaris* and *P. coccineus* in Hansson et

al. (2004) are equivalents to *P. coccineus* subsp. *coccineus* var. *coccineus* and *P. vulgaris* var. *mexicanus* (Delgado 1985; Delgado et al. 1988; Freytag & Debouck 2002). Known distribution records of this guild are extended to the states of Morelos and Puebla (Table 1).

Material Examined (all from Mexico)

Horismenus butcheri Hansson, Aebi & Benrey

MORELOS: Tepoztlán, San Andrés de la Cal (18°54'47.20"N, 99°7'44.52"W), 1430 m, 13-I-1997, A. Bonet, 1 (m) from *Acanthoscelides obtectus*, reared from seeds of *P. vulgaris* var. *mexicanus*. Tepoztlán (18°59'53.45"N, 99°7'32.4"W), 1900 m, 25-XII-1993, A. Bonet, 1 (f) from *A. obtectus*; 14-I-1995, A. Bonet, 1 (f) from *A. obvelatus*; 25-XI-XII-1995, 3 (m) 5 (f) from *A. obvelatus*; 25-XII-1995, 1 (m) 1 (f) from *A. obtectus*; all reared from *P. vulgaris* var. *mexicanus*; 27-I-1997, A. Bonet, 1(f); 09-10-I-1980, 4 (f); 19-I-1982, 1 (m); 08-XII-1991, 1 (f); all on *Acanthoscelides* sp., all reared from *P. coccineus* subsp. *coccineus* var. *coccineus*.

Horismenus depressus Gahan

MORELOS: Tepoztlán, San Andrés de la Cal (18°54'47.20"N, 99°7'44.52"W), 1430 m, 13-I-1997, A. Bonet, 2 (f) from *A. obtectus*; 18-I-1998, 2 (m) 1 (f) from *A. obtectus*. Tepoztlán (18°59'53.45"N, 99°7'32.4"W), 1900 m, 28-XII-1993, A. Bonet, 1 (f) from *A. obtectus*; 25-XI-1995, A. Bonet, 1 (f) from *A. obvelatus*; 25-XII-1995, 2 (m) 1 (f) from *A. obvelatus*; 25-XII-1995, 1 (f) from *A. obtectus*; 17-I-2001, 1(f) from *A. obtectus*, all reared from seeds from *P. vulgaris* var. *mexicanus*. 06-I-1980, Arturo Bonet, 1 (f) from *Acanthoscelides* sp., reared from seeds from *P. coccineus* subsp. *coccineus* var. *coccineus*. Tlayacapan, Pantitlán (18°55'0.17"N, 98°59'37.22"W), 1300 m, 14-I-1997, A. Bonet, 1 (f) from *A. obtectus*; 21-I-2000, 1 (f) from *A. obtectus*; 17-I-2001, 2 (f) from *A. obvelatus*. PUEBLA: Tilapa, San Félix Rijo, Río Ahuehueyo (18°37'0.36"N, 98°33'55.18"W), 1250 m, 20-XII-1991, A. Bonet, 2 (m) 2 (f) from *A. obtectus*; 20-I-1996, A. Bonet, 7 (m) 6 (f) from *A. obtectus*, all reared from seeds of *P. vulgaris* var. *mexicanus*.

TABLE 1. BRUCHIDAE HOSTS, HOST PLANTS AND DISTRIBUTION OF *HORISMENUS* SPECIES.

<i>Horismenus</i> species	Bruchidae hosts	Host plants	Location	References
<i>Horismenus butcheri</i> Hansson, Aedi & Benrey	<i>Mimosestes amicus</i> (Horn)		U.S.A (New Mexico)	Ashmead 1894
	<i>Acanthoscelides</i> sp.	<i>Phaseolus vulgaris</i> (wild type)	Mexico (Mexico)	Hansson et al. 2004
	<i>Acanthoscelides</i> sp.	<i>Phaseolus coccineus</i> subsp. <i>coccineus</i> var. <i>coccineus</i> ²	Mexico (Morelos ³)	this paper
	<i>Acanthoscelides obtectus</i> (Say) ¹	<i>Phaseolus vulgaris</i> var. <i>mexicanus</i> Delgado	Mexico (Morelos ³)	this paper
<i>Horismenus depressus</i> Gahan (<i>H.</i> sp. near <i>depressus</i> Gahan)	<i>Acanthoscelides obvelatus</i> Bridwell ¹	<i>Phaseolus vulgaris</i> var. <i>mexicanus</i> Delgado	Mexico (Morelos ³)	this paper
	<i>Stator pruininus</i> (Horn)	<i>Acacia</i> , <i>Olneya</i>	U.S.A. (California)	Gahan 1930
	<i>Bruchus</i> sp.	<i>Acacia</i> seeds	U.S.A. (Texas)	Burks 1971
	<i>Acanthoscelides obtectus</i> (Say)		Mexico	Steffan 1981
	<i>Acanthoscelides obtectus</i> (Say)	<i>Phaseolus coccineus</i> (wild type) and <i>Phaseolus vulgaris</i> (wild type)	Mexico (Morelos)	Pérez & Bonet 1984
	<i>Acanthoscelides obtectus</i> (Say)		Mexico	De Santis 1989
	<i>Acanthoscelides</i> sp.	<i>Phaseolus</i> spp.	Mexico	Hansson et al. 2004
	<i>Acanthoscelides</i> sp.	<i>Phaseolus vulgaris</i> (wild type)	Mexico (Michoacan, Mexico, Morelos)	Hansson et al. 2004
	<i>Acanthoscelides</i> sp.	<i>Phaseolus coccineus</i> subsp. <i>coccineus</i> var. <i>coccineus</i>	Mexico (Morelos)	this paper
	<i>Acanthoscelides obtectus</i> (Say)	<i>Phaseolus vulgaris</i> var. <i>mexicanus</i> Delgado	Mexico (Morelos, Puebla ⁴)	this paper
<i>Horismenus missouriensis</i> (Ashmead)	<i>Acanthoscelides floridae</i> Horn		U.S.A. (Oklahoma)	Brett 1946
	<i>Acanthoscelides submuticus</i> (Sharp)		U.S.A. (New York, South Dakota, Oklahoma)	Peck 1963
	<i>Amblycerus robiniae</i> (Fabricius)		U.S.A. (North Carolina, Georgia, Missouri)	Peck 1951
	<i>Gibbobruchus</i> sp.		U.S.A. (from New York southwards)	Burks 1971, 1979
	<i>Gibbobruchus</i> sp.		Brazil	De Santis 1980
	<i>Ctenocolum crotonae</i> (Fähraeus)	<i>Lonchocarpus muehlbergianus</i> Hassler	Brazil (Parana)	Sari et al. 2002
	<i>Acanthoscelides</i> sp.	<i>Phaseolus</i> spp.	Mexico	Hansson et al. 2004
	<i>Acanthoscelides</i> sp./ <i>Zabrotes</i> sp.	<i>Phaseolus vulgaris</i> (wild type) and <i>Phaseolus coccineus</i> (wild type)	Mexico (Michoacan, Mexico, Distrito Federal, Morelos)	Hansson et al. 2004
	<i>Acanthoscelides</i> sp.	<i>Phaseolus coccineus</i> subsp. <i>coccineus</i> var. <i>coccineus</i>	Mexico (Morelos)	this paper
	<i>Acanthoscelides obtectus</i> (Say) ¹	<i>Phaseolus vulgaris</i> var. <i>mexicanus</i> Delgado	Mexico (Morelos)	this paper
	<i>Acanthoscelides obvelatus</i> Bridwell ¹	<i>Phaseolus vulgaris</i> var. <i>mexicanus</i> Delgado	Mexico (Morelos)	this paper

¹New bruchid host records for *Horismenus* species.²New host plants records for *Horismenus* species.³New distribution records for *Horismenus* species.

TABLE 1. (CONTINUED) BRUCHIDAE HOSTS, HOST PLANTS AND DISTRIBUTION OF *HORISMENUS* SPECIES.

<i>Horismenus</i> species	Bruchidae hosts	Host plants	Location	References
<i>Horismenus productus</i> (Ashmead)	<i>Mimosestes amicus</i> (Horn) <i>Acanthoscelides submuticus</i> (Sharp) Bruchidae spp. <i>Acanthoscelides prosopis</i> (LeConte)	<i>Phaseolus coccineus</i> subsp. <i>coccineus</i> var. <i>coccineus</i> ² Mexico (Morelos) <i>Phaseolus vulgaris</i> var. <i>mexicanus</i> Delgado ² <i>Phaseolus vulgaris</i> var. <i>mexicanus</i> Delgado ²	Colombia Mexico (Morelos) Mexico (Morelos) ³	U.S.A. (New Mexico) U.S.A. (Texas, Arizona, California) Burks 1979 “ De Santis 1989 this paper this paper this paper
	<i>Acanthoscelides obtectus</i> (Say) <i>Acanthoscelides obvelatus</i> Bridwell ¹			

¹New bruchid host records for *Horismenus* species.²New host plants records for *Horismenus* species.³New distribution records for *Horismenus* species.*Horismenus missouriensis* (Ashmead)

MORELOS: Tepoztlán (18°59'53.45"N, 99°7'32.4"W), 1900 m, 25-XI-1995, A. Bonet, 1(m) 1(f) from *A. obvelatus*, reared from seeds of *P. vulgaris* var. *mexicanus*; 25-XI-1995, A. Bonet, 1 (f) from *A. obtectus*, reared from seeds of *P. vulgaris* var. *mexicanus*; 25-XII-1995, A. Bonet, 2 (m) 1(f) from *A. obtectus*; 09-XII-1996, 2 (m) from *A. obvelatus*. Tlayacapan, Pantitlán (18°55'0.17"N, 98°59'37.22"W), 1300 m, 14-I-1997, A. Bonet, 1 (m) from *A. obtectus*, all reared from seeds of *P. vulgaris* var. *mexicanus*; 22-XI-1979, A. Bonet, 1 (m); 09-10, 12-I-1980, 7 (f) from *Acanthoscelides* sp., all reared from seeds of *P. coccineus* subsp. *coccineus* var. *coccineus*.

Horismenus productus (Ashmead)

MORELOS: Tepoztlán, San Andrés de la Cal (18°54'47.20"N, 99°7'44.52"W), 1430 m, 27-X-1990, A. Bonet, 1 (f) from *A. obtectus*, reared from seeds of *P. vulgaris* var. *mexicanus*. Tepoztlán (18°59'53.45"N, 99°7'32.4"W), 1900 m, 28-XII-1993, A. Bonet, 2 (m) 2 (f) from *A. obtectus*; 14-I-1995, 7 (m) 8 (f) from *A. obvelatus*; 14-I-1995, 1 (f) from *A. obtectus*; 09-XII-1996, 1 (m) from *A. obvelatus*; 13-I-1997, A. Bonet, 1 (m) 1 (f) from *A. obvelatus*; 14-I-1997, 1 (f) from *A. obtectus*; 14-I-1997, 1 (f) from *A. obvelatus*; 25-XI-1995, 2 (m) 3 (f) from *A. obvelatus*; 25-XI-1995, 2 (m) from *A. obtectus*; 25-XII-1995, 3 (m) 2 (f) from *A. obtectus*; 25-XII-1995, 2 (m) 3 (f) from *A. obvelatus*, all reared from seeds of *P. vulgaris* var. *mexicanus*; 27-I-1979, A. Bonet, 2 (f); 22-XI-1979, 1 (m); 9-10, 12-I-1980, 2 (m) 5 (f); 08-XII-1991, 2 (m) from *Acanthoscelides* sp., all reared from seeds of *P. coccineus* subsp. *coccineus* var. *coccineus*. Tlayacapan, Pantitlán (18°55'0.17"N, 98°59'37.22"W), 1300 m, 14-I-1997, A. Bonet, 2 (f) from *A. obtectus*, reared from seeds of *P. vulgaris* var. *mexicanus*; 17-I-2001, 3 (f) from *A. obtectus*.

We thank Delia García for invaluable technical assistance. This contribution was possible thanks to the Entomology Department, Instituto de Ecología A. C. (INECOL), grant No. 2000810014.

SUMMARY

New host, host plant, and distribution records were recorded for 4 *Horismenus* species (*H. butcheri*, *H. depressus*, *H. missouriensis*, *H. productus*) that attack *A. obtectus* and *A. obvelatus* on *P. coccineus* subsp. *coccineus* and *P. vulgaris* var. *mexicanus*. The distribution records of this guild in Mexico are extended to the states of Morelos and Puebla.

REFERENCES CITED

- ASHMEAD, W. H. 1888. Descriptions of new parasitic Hymenoptera. Trans. American Entomol. Soc. 21: 318-344.

- BRETT, C. H. 1946. Insecticidal properties of the Indigo-bush (*Amorpha fruticosa*). *J. Agricultural Res.* 73 (3): 81-96.
- BURKS, B. D. 1971. The Nearctic species of *Horismenus* Walker. *Proc. Entomol. Soc. Washington* 73 (1): 68-83.
- BURKS, B. D. 1979. The Eulophidae, pp. 967-1021 *In* K. V. Krombein, P. D. Hurd, D. R. Smith, and B. D. Burks [eds.], Catalog of Hymenoptera in America North of Mexico, Vol. 1. Smithsonian Institution Press, Washington, D. C., 1198 pp.
- DELGADO, A., A. BONET, AND P. GEPTS. 1988. The wild relative of *Phaseolus vulgaris* in Middle America, pp. 163-184 *In* P. Gepts [ed.], Genetic Resources of *Phaseolus* beans. Kluwer Academic Publishers, Dordrecht, 613 pp.
- DE SANTIS, L. 1989. Catálogo de los Himenópteros Calcidoideos (Hymenoptera) al sur de los Estados Unidos. Segundo suplemento. *Acta Entomologica Chileana* 15: 50.
- FREYTAG, G. F., AND D. G. DEBOUCK. 2002. Taxonomy, Distribution, and Ecology of the Genus *Phaseolus* (Leguminosae-Papilionoideae) in North America, Mexico and Central America. *Sida, Botanical Miscellany*, No. 23: 1-300.
- GAHAN, A. B. 1930. Synonymical and descriptive notes on parasitic Hymenoptera. *Proc. United States Natl. Mus.* 77 (8): 1-12.
- HANSSON, C., A. AEBI, AND B. BENRAY. 2004. *Horismenus* species (Hymenoptera: Eulophidae) in a bruchid beetle parasitoid guild, including the description of a new species. *Zootaxa* 548: 1-16.
- JOHNSON, C. D. 1983. Ecosystematics of *Acanthoscelides* (Coleoptera: Bruchidae) of southern Mexico and Central America. *Misc. Publ. Entomol. Soc. America* 56: 1-370.
- NOYES, J. S. 2003. Universal Chalcidoidea Database. World Wide Web electronic publication. www.nhm.ac.uk/entomology/chalcidoids/index.html [accessed 05-Sep-2003].
- PECK, O. 1951. Superfamily Chalcidoidea, pp. 410-593 *In* C. F. W. Muesebeck, K. V. Krombein, and H. K. Townes [eds.], Hymenoptera of America North of Mexico. United States Government printing office, Washington D. C., 1420 pp.
- PECK, O. 1963. A Catalogue of the Nearctic Chalcidoidea (Insecta: Hymenoptera). *Canadian Entomol.* (Supplement 30): 1-1092.
- PÉREZ, G., AND A. BONET. 1984. Himenópteros parasitoides de *Acanthoscelides obtectus* (Say) (Coleoptera: Bruchidae) en Tepoztlán, Morelos. *Folia Entomológica Mexicana* No 59: 71-78.
- SARI, L. T., C. S. RIBEIRO-COSTA, AND A. C. S. MEDEIROS. 2002. Insects associated with seeds of *Lonchocarpus muehbergianus* Hassl. (Fabaceae) in Tres Barras, Parana, Brazil. *Neotropical Entomol.* 31 (3): 483-486.
- STEFFAN, J. R. 1981. The parasites of bruchids, pp. 223-229 *In* V. Labeyrie [ed.], The Ecology of Bruchids Attacking Legumes (Pulses). Dr. W. Junk, The Hague, 233 pp.