



New Sucking Coreids Species in *Psidium guajava*

Evaldo Martins Pires^{1,+}; Roberta Martins Nogueira¹; Célio Jacinto da Silva¹; Fabieli Pelissari¹; João Alfredo Marinho Ferreira²; Marcus Alvarenga Soares³

¹ Universidade Federal de Mato Grosso, Campus de Sinop, 78557-267 Sinop, MT, Brasil.

² Universidade Federal de Viçosa, 36560-000 Viçosa, MG, Brasil.

³ Universidade Federal dos Vales do Jequitinhonha e Mucuri, 39100-000 Diamantina, MG, Brasil.

+ Author for correspondence: evaldo.pires@gmail.com

Abstract

The Coreidae Family is an important insect group because of its higher diversity of species and further to be found in different habitats. The species *Hypselonotus fulvus* (De Geer, 1773) and *Leptogossus zonatus* (Dallas, 1952) (Heteroptera: Coreidae) are phytophagous and can cause lots of damage in the agriculture and forestry area. Additionally, they can spread some agents responsible for plant diseases damaging the fruit quality and decreasing the value for market. The aims of this work were record the occurrence of *H. fulvus* and *L. zonatus* colonizing and feeding on guava (*Psidium guajava*) fruits in Sinop, Mato Grosso State, Brazil. We observed the presence of insects especially on mature fruits that could change the fruit characteristics, besides serving as an entrance for pathogens. This is the first record of *H. fulvus* and *L. zonatus* on guava fruits in Brazil. Even the fruits present possess deformation where the insects feed on; additionally studies are necessary to measure the economic damage of this insect on guava fruits.

Keywords: *Hypselonotus fulvus*, *Leptogossus zonatus* *Psidium guajava*.

Resumo

A Família Coreidae é um importante grupo de insetos porque possui grande diversidade de espécies, e ainda por serem encontrados em diferentes habitats. As espécies *Hypselonotus fulvus* (De Geer, 1773) e *Leptogossus zonatus* (Dallas, 1952) (Heteroptera: Coreidae) são fitófagos e podem além de causar prejuízos nos setores agrícola e florestal. Adicionalmente, eles podem disseminar alguns agentes responsáveis por doenças prejudicando a qualidade dos frutos e reduzindo o valor comercial. O objetivo deste trabalho foi relatar a ocorrência de *H. fulvus* e *L. zonatus* colonizando e alimentando de frutos de goiabeira (*Psidium guajava*) em Sinop, Mato Grosso, Brasil. A presença desses insetos foi verificada principalmente nos frutos maduros levando a alteração do seu aspecto devido às perfurações dos mesmos, além de servir de porta de entrada para patógenos. Este é o primeiro relato *H. fulvus* e *L. zonatus* em frutos de goiaba no Brasil. Embora os frutos apresentem deformações nos locais onde foram encontrados os insetos, outras avaliações são necessárias para verificar se o mesmo causa algum dano econômico ao fruto.

Palavras chave: *Hypselonotus fulvus*, *Leptogossus zonatus* *Psidium guajava*

Description

Heteroptera insects can be found in many different habitats. There are phytophagous, predators and hematophagous species in this taxonomic group and they are important for agriculture, forestry and healthy areas (Pires et al., 2009). Around 25,000 Heteroptera species are described and they are commonly known as a bug (Gallo, 2002)

The Coreidae family is important due the fact of its diversity and the higher number of species (Schuh & Slater, 1995). This group is mainly constituted by cosmopolitan species that present higher abundance in subtropical and tropical regions (Maes & Goellner Scheiding, 1993). Some Coreidae species are considered important pests that attack and feed on cucurbits, ornamentals, medicinal, Solanaceae and fruit trees (Silva, 1971; Mitchell, 2000; Marchiori et al., 2001; Baldin et al., 2002; Leite et al., 2006).

Hypselonotus fulvus (De Geer, 1775) (Heteroptera: Coreidae) has been recorded in Honduras, Nicaragua, Panamá, Colombia, French Guiana, Ecuador, Argentina and Brazil (Maes & Goellner Scheiding, 1993). In this last country, the first record of this species was observed by C.H. Hathaway on avocado trees (*Persea gratissima*) attacking new shoots of this plant species (Costa Lima, 1940). There are also some records of this insect species causing damage on cotton (*Gossypium hirsutum*) bolls during the reproductive phase of the plant that would reduce the cotton production because the transmission and dissemination of some pathogens (Mendes, 1956). Again, there are records of the presence of some protozoa (trypanosomes) inside the digestive tube and the salivary glands of *H. fulvus* (Godoi, 2000). This fact would be the reason that this insect species is very important as a vector of some plant diseases.

Leptoglossus zonatus (Dallas, 1952) (Heteroptera: Coreidae) is a species of coreid bug usually found in southeast of United States of America, Mexico and Central and South America (Allen 1969; Schaefer & Panizzi 2000; Henne et al., 2003). This species is related damaging different

plants such as cotton (*Gossypium hirsutum* L.), egg plant (*Solanum melongena* L.), citrus (*Citrus* spp.), bean (*Phaseolus vulgaris* L.), guava (*Psidium guajava* L.), passion fruit (*Passiflora edulis* Sims), water melon (*Citrullus lanatus* (Thunb.) Matsum. & Nakai.), melon (*Cucumis melo* L.), corn (*Zea mays* L.), peach (*Prunus persica*) (L.) Batsch), pomegranate (*Punica granatum* L.), soybean (*Glycine max* L.), sorghum (*Sorghum bicolor* (L.) Moench), tomato (*Lycopersicon esculentum* Mill. (Silva et al., 1968; Allen, 1969; Albrigo & Bullock, 1977; Solomon & Froeschner, 1981; Panizzi, 1989; Kubo & Batista, 1992; Zucchi et al., 1993; Rodrigues Netto & Guilhem, 1996; Matrangolo & Waquil, 1994; Raga et al., 1995; Johnson & Allain, 1998; Schaefer & Panizzi, 2000; Xiao & Fadamiro, 2009) and also *Chilopsis linearis* (Cav.) Sweet, *Gossypion* spp., *Phoenix dactylifera* L., *Sida* spp., *Spathodea campanulata* P.Beauv. and *Trinfetta* spp. (Silva et al., 1968; Allen, 1969; Solomon & Froeschner, 1981; Schaefer & Mitchell, 1983; Souza & Amaral-Filho, 1999). Then, the aim of this work was to record the occurrence of *L. zonatus* attacking starfruit in Sinop, Mato Grosso, Brazil and report a new host plant to this bug species. Recently, this insect was reported attacking starfruit (*Averrhoa carambola* L.) (Pires et al., 2011), *Malpighia emarginata* Sessé & Moc (Malpighiaceae), *Morus nigra* Linnaeus (Moraceae) and *Mangifera indica* Linnaeus (Anacardiaceae) (Pires et al., 2012).

The aims of this work were to record a new host plant for the coreids *H. fulvus* and *L. zonatus* and further record an increasing of the geographical distribution of these insects species. Some observations were carried out in Sitio Santo Antonio (11° 52' 15,62" S and 55° 27' 46,71" W) in Sinop, Mato Grosso State, Brazil (Figure 1). The total area has around 48.4 hectare and soy and corn grow on 36 hectare under a rotation system of these cultures. In this area there are fragments of Amazonia native forest (around 12 hectares) bordered by acerola, mulberry, star fruit, mango, guava and other fruit plants.

Specimens of *H. fulvus* and *L. zonatus* (Figure 2 A, B, C and D) were found and collected on guava plants and feeding on fruits during the period between September and December of 2012, the same period of the plant fructification. The

identification of the specimens was carried out by Dr. Evaldo Martins Pires, an entomologist from "Instituto de Ciências Naturais, Humanas e Sociais (ICNHS)" of Federal University of Mato Grosso, Campus of Sinop.



Figure 1. Satellite view of the sample area (Sítio Santo Antonio) in Sinop, Mato Grosso State, Brazil. Source: Google Earth



Figure 2. *Hypselonotus fulvus* (De Geer, 1775) (A and B) and *Leptoglossus zonatus* (Dallas, 1952) (C and D) (Heteroptera: Coreidae) on guava fruit (*Psidium guajava*) in Sinop, Mato Grosso State, Brazil.

Because of the phytophagous behaviour of these insects species, the exposed fruits presented damages that could decrease the visual appearance of the fruit, as well as favouring the pathogens entrance in the fruit and consequently premature fall of the fruits. Then, we can suggest to avoid guava plants near by the areas used for growing cotton plants. Also, *H. fulvus* and *L. zonatus* should be included in monitoring programs of pests for this crop because of the directly and severe damage on the cotton bolls.

Acknowledge

We would like to acknowledge Antonio Carlos Botter and Mário Augusto Boter for their support during the samples in Sítio Santo Antônio.

References

- ALBRIGO, L.G., BULLOCK, R.C. Injury to citrus fruit by leaf-footed and citrus plant bugs. **Proceedings of the Florida State Horticultural Society** 90: 63–67. 1977.
- ALLEN, R.C. A revision of the Genus *Leptoglossus* Guerin (Hemiptera: Coreidae). **Entomologica Americana** 45: 135-140. 1969.
- BALDIN, E.L.L., CAETANO, A.C., LARA, F.M. Atração e desenvolvimento de *Leptoglossus gonagra* (Fabricius) (Hemiptera: Coreidae) em cultivares de abóbora e moranga. **Scientia Agricola** 59: 191-196. 2002.
- COSTA LIMA, A.C. **Insetos do Brasil**, 2º tomo, capítulo 22, Hemípteros. Série Didática Núm. 3. Escola Nacional de Agronomia, Rio de Janeiro 351 p. 1940.
- GALLO, D., NAKANO, O., SILVEIRA NETO, S., CARVALHO, R.P.L., BATISTA, G.C., BERTI FILHO, E., PARRA, J.R.P., ZUCCHI, R.A., ALVES, S.B., VENDRAMIN, J.D., MARCHINI, L.C., LOPES, J.R. S., OMOTO, C. **Entomologia Agrícola**. Piracicaba: FEALQ 920 p. 2002.
- GODOI, M.M.I.M. **Phytomonas e outros tripanossomatídeos em insetos no estado de Rondônia – Amazônia Ocidental**. 59f. (Dissertação de Mestrado) - Universidade de São Paulo, São Paulo, Brasil, 2000.
- HENNE, D.C., JOHNSON, S.J., BOURGEOIS, W.J. Pest status of leaf-footed bugs (Heteroptera: Coreidae) on citrus in Louisiana. **Proceedings of the Annual Meeting of the Florida State Horticultural Society** 116: 240-241. 2003.
- KUBO, R.K., BATISTA, F.A. Ocorrência e danos provocados por *Leptoglossus zonatus* (Dallas, 1852) (Hemiptera, Coreidae) em citros. **Anais da Sociedade Entomológica do Brasil** 21: 467-470. 1992.
- LEITE, G.L.D., ARAÚJO, C.B.O., AMORIM, C.A.D., MARTINS, E.R. Fatores climáticos influenciam a abundância de artrópodes de plantas medicinais no Estado de Minas Gerais, Brasil. **Revista Brasileira de plantas medicinais** 8: 43-51, 2006.
- JOHNSON, S.R., ALLAIN, L.K. Observations on insect use of Chinese tallow (*Sapium sebiferum* (L.) Roxb.) in Louisiana and Texas. **Castanea** 63: 188–189. 1998.
- MAES, J.M., GOELLNER SCHEIDING, U. Catalogo de los coreoidea (Heteroptera) de Nicaragua. **Revista Nicaragüense de Entomologia** 25: 1-19, 1993.
- MARCHIORI, C.H., OLIVEIRA, A.M.S., RABELO, M.C.C., SILVA, F.F., CARVALHO, A.C.S.C. Ocorrência de *Gryon gallardoi* (Brethes) (Hymenoptera: Scelionidae) parasitando ovos de *Leptoglossus zonatus* (Dallas) (Hemiptera: Coreidae) em Itumbiara, Goiás, Brasil. **Pesquisa Agropecuária Tropical** 31: 169-170. 2001.
- MATRANGOLO, W.J.R., WAQUIL, J.M. Biology of *Leptoglossus zonatus* (Dallas) (Hemiptera: Coreidae) fed on maize and sorghum. **Anais da Sociedade Entomológica do Brasil** 23: 419–423. 1994.
- MENDES, L.O.T. Podridão interna dos capulhos do algodoeiro obtida por meio de insetos. **Bragantia** 15: 9-11, 1956.

- MITCHELL, P.L. Leaf-Footed Bugs (Coreidae). In: SCHAEFER, C.W.; PANIZZI, A.C. (eds.). *Heteroptera of Economic Importance*. Boca Raton: **CRC Press**, p. 337-403, 2000.
- PANIZZI, A.R. Desempenho de ninfas e adultos de *Leptoglossus zonatus* Dallas (Hemiptera: Coreidae) em diferentes alimentos. **Anais da Sociedade Entomológica do Brasil** 18: 375-389. 1989.
- PIRES, E.M., RUFFATO, S., MANICA, C.L.M., SOARES, M.A., LACERDA, M.C. Novas Plantas Hospedeiras para o Percevejo Fitófago *Leptoglossus zonatus* (Dallas) (Hemiptera: Coreidae). **EntomoBrasilis** 5: 249-252. 2012.
- PIRES, E.M., BONALDO, S.M., FERREIRA, J.A.M., SOARES, M.A., CANDAN, S. New Record of *Leptoglossus zonatus* (Dallas) (Hemiptera: Coreidae) Attacking Starfruit (*Averrhoa carambola* L.) in Sinop, Mato Grosso, Brazil. **EntomoBrasilis** 4: 33-35. 2011.
- PIRES, E.M.; PINTO, R.; SOARES, M.A.; SANTOS, G.P.; ZANUNCIO, T.V. & ZANUNCIO, J.C. Produção de Percevejos Predadores. Visconde do Rio Branco, MG: **Suprema**, 56 p. 2009.
- RAGA, A.C., PIZA, J., SOUZA FILHO, M.F. Ocorrência e danos de *Leptoglossus zonatus* (Dallas) (Hemiptera: Coreidae) em Romã, *Punica granatum* L., em Campinas, São Paulo. **Anais da Sociedade Entomológica do Brasil** 24: 183-185. 1995.
- RODRIGUES NETTO, S.M., Guilhem, D.J. Ocorrência de *Leptoglossus zonatus* (Dallas, 1852) (Hemiptera: Coreidae) em maracujazeiro (*Passiflora edulis* f. *flavicarpa*). **Arquivos do Instituto Biológico** 63: 85-86. 1996.
- SCHAEFER, C.W., PANIZZI, A.R. **Heteroptera of economic importance**. CRC Press, Boca Raton, Florida, USA, 828 p. 2000.
- SCHAEFER, C.W., MITCHELL, P.L. Food plants of the Coreoidea (Hemiptera: Heteroptera). **Annals of the Entomological Society of America** 76: 591-615. 1983.
- SCHUH, R.T., SLATER, J.A. **True bugs of the World (Hemiptera: Heteroptera). Classification and Natural History**. Ithaca, Cornell University. 336 p. 1995.
- SILVA, A.G. Catálogo de Hemiptera Cearenses. **Revista do instituto do Ceará**. LXXXV: 137-143. 1971.
- SILVA, A.G.A., GONÇALVES, C.R., GALVÃO, D.M., GONÇALVES, A.J.L., GOMES, J., SILVA, M.N., SIMONI, L. **Quarto catálogo dos insetos que vivem nas plantas do Brasil. Seus parasitos e predadores**. Parte 2, Tomo 1º, Rio de Janeiro, Ministério da Agricultura, 622 p. 1968.
- SOLOMON, J.C., FROESCHNER, R.C. Notes on food resources and behavior of the family Coreidae (Hemiptera) in a semideciduous tropical forest. **Proceedings of the Entomological Society of Washington** 83: 428-431. 1981.
- SOUZA, C.E.P., AMARAL FILHO, B.F. Nova planta hospedeira de *Leptoglossus zonatus* (Dallas) (Hemiptera: Coreidae). **Anais da Sociedade Entomológica do Brasil** 28: 753-756. 1999.
- XIAO, Y., FADAMIRO, H.Y. Host preference and development of *Leptoglossus zonatus* (Hemiptera: Coreidae) on Satsuma mandarin. **Journal of Economic Entomology** 102: 1908-1914. 2009.
- ZUCCHI, R.A., NETO, S.S., NAKANO, O. **Guia de identificação de pragas agrícolas**. Piracicaba: FEALQ 139 p. 1993.