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Syntomopus parisii and *Leptomeraporus* sp. parasitizing *Melanagromyza sojae* in BrazilGeraldo Salgado-Neto¹ Janine Palma² Valmir Antonio Costa³¹Departamento de Defesa Fitossanitária, Universidade Federal de Santa Maria (UFSM), 97105-900, Santa Maria, RS, Brasil. E-mail: gsalgado@bol.com.br.^{*}Corresponding author.²Setor de Entomologia, Cooperativa Central Gaúcha LTDA., Unidade de Tecnologia (CCGL TEC), Cruz Alta, RS, Brasil.³Centro Experimental Central do Instituto Biológico, Campinas, SP, Brasil.

ABSTRACT: This note is the first report of *Syntomopus parisii* De Santis 1976 and *Leptomeraporus* sp. (Hymenoptera, *Pteromalidae*) simultaneously parasitizing *Melanagromyza sojae* Zehntner, 1900 (Diptera, *Agromyzidae*) in Brazil. The *Pteromalidae* parasitoids are natural enemies of stem miner flies, opening perspectives for biological control of soybean stem miner fly.

Key words: biological control, dipterous parasitoids, miner fly, stem miner fly.

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RESUMO: Esta nota é o primeiro registro de *Syntomopus parisii* De Santis 1976 e *Leptomeraporus* sp. (Hymenoptera, *Pteromalidae*) parasitando simultaneamente *Melanagromyza sojae* Zehntner, 1900 (Diptera, *Agromyzidae*) no Brasil. Os parasitoides *Pteromalidae* são inimigos naturais de moscas minadoras do caule, abrindo perspectivas para o controle biológico da mosca-minadora do caule da soja.

Palavras-chave: controle biológico, mosca-minadora, mosca-minadora-do-caule, parasitoides de dípteros.

Several species of flies belonging to family *Agromyzidae* are well adapted to leguminous plants, most of them belonging to the genus *Melanagromyza* Hendel. *M. sojae* Zehntner, 1900, *M. dolichostigma* Meijere, 1922, *M. koizumii* Kato, 1961, *M. vignalis* Spencer, 1959 and *M. obtusa* (Malloch, 1914) cause injury in *Glycine* spp. (GANGRADE & KONGAN, 1980; TALEKAR, 1989, VAN DEN BERG et al., 1998, MAZUMDAR & BHUIYA, 2014). Stem-miner were reported in southern Brazil feeding internally the stem, taproot and petioles of the soybean plants; this stem-miner was identified as *Melanagromyza* sp. (GASSEN & SCHNEIDER, 1985). ARNEMANN et al. (2016) reported the complete mitochondrial DNA genome of the soybean stem fly (SSF) *M. sojae* from Brazil and Santa Catarina state for rapid identification.

This study aimed to identify the parasitoids (Hymenoptera, *Pteromalidae*) as natural enemies of stem miner flies *M. sojae* in soybean stems in the municipalities of Tupanciretã and Cruz Alta RS, Brazil. Dipteran larvae were collected from soybean crops in the above mentioned location (29°05'45"S; 53°50'40"W) and (28°34'55"S; 53°40'50"W) respectively. *Melanagromyza sojae* larvae were

collected in individual containers of 60mL, in the period of 2014/2015 (Tupanciretã) and in April 2015 in off-season soybean crop (Cruz Alta), experimental station of the CCGL TEC. Parasitoid genera were identified according to BOUČEK & HEYDON (1997). *Syntomopus* species was identified according to De SANTIS et al. (1976) and HEYDON (1993). The specimens were deposited at Coleção de Insetos Entomófagos Oscar Monte (Instituto Biológico, Campinas, São Paulo, Brazil).

Syntomopus parisii De Santis, 1976 (Hymenoptera, *Pteromalidae*) (Figure 1) has not yet been reported in Brazil. This primary parasitoid of dipterous miner larvae of the *Agromyzidae* family have only been reported in Argentina, where it was found as a parasite of *Melanagromyza cunctanoides* Blanchard, 1954 (Diptera, *Agromyzidae*) (DE SANTIS et al., 1976).

There are only two described species of the genus *Leptomeraporus* Graham (Hymenoptera, *Pteromalidae*). *Leptomeraporus nicaee* (Walker, 1839) occurs only in Europe and is associated with *Eurytomidae* (BOUČEK, 1961, 1993) and *Cynipidae* (ELLIS 2002a; 2002b). *Leptomeraporus ornatus*



Figure 1 - *Syntomopus parisii* De Santis, 1976 (Hymenoptera, *Pteromalidae*) female.

Bouček, 1993 is known only to the United States and its host is *Walshia amorphela* Clemens, 1864 (Lepidoptera, *Momphidae*) (BOUČEK, 1993); this author; however, considered the host record unusual, given the biology of the other species of the genus. Basing on known records for *Leptomeraporus* species and the present findings, the secondary parasitism on other Hymenoptera is a possibility. *Leptomeraporus ornatus* was described based only on males (BOUČEK, 1993) and the male specimens obtained in this study agree well with the original description. However, in the opinion of Dr. Steven

L. Heydon (University of California, Davis, U.S.A., personal communication to one of the authors), this is probably an undescribed species.

This is the first record in Brazil of the natural action of parasitoids *S. parisii* and *Leptomeraporus* sp. (Figure 2). parasitizing larvae and pupae of *M. sojae*. This fact opens up great prospects in the development of new techniques for biological control of soybean stem miner flies. This finding adds information available on the geographical distribution of *S. parisii* and *Leptomeraporus* sp. in South America.

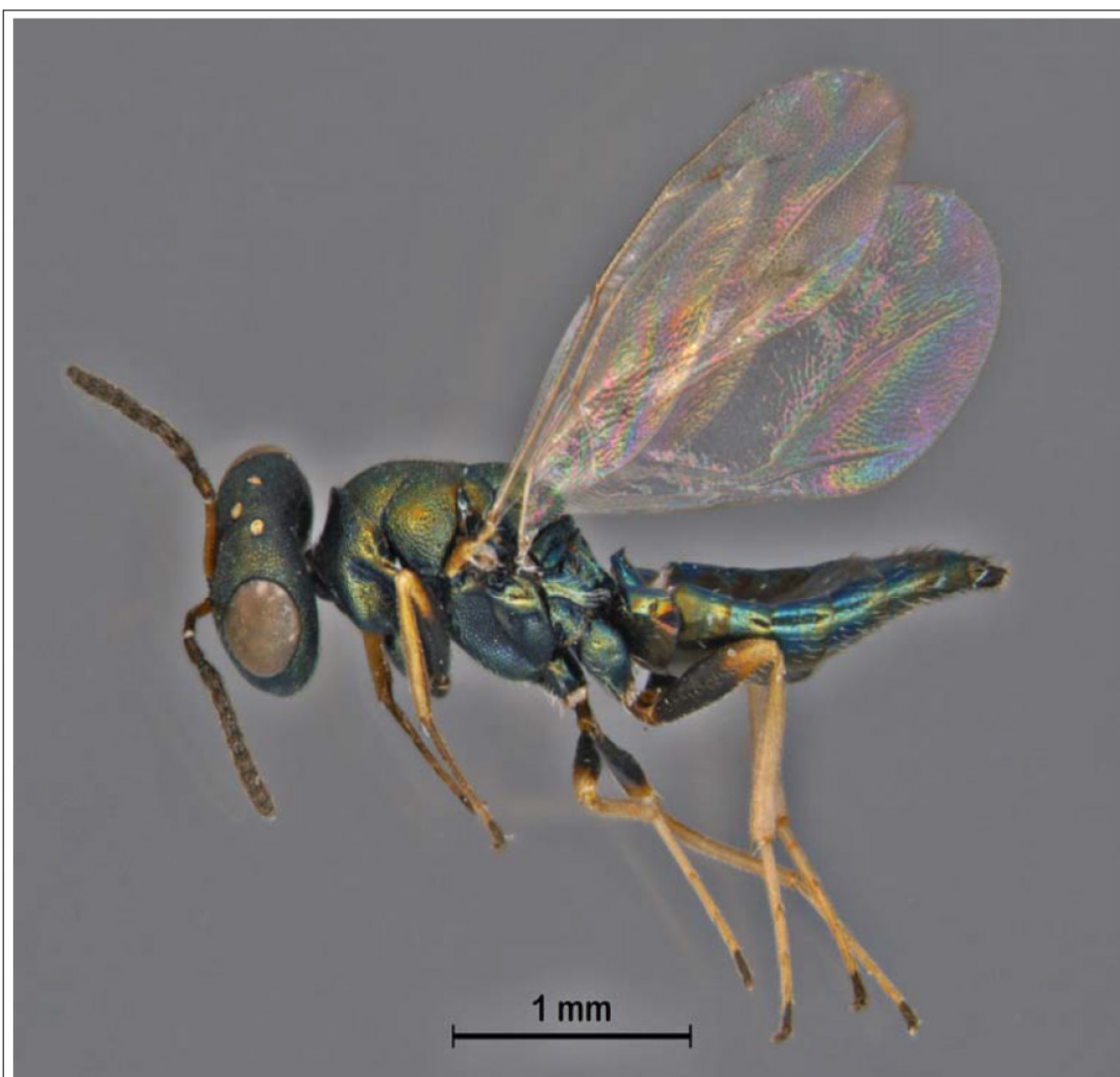


Figure 2 - *Leptomeraporus* sp. (Hymenoptera, *Pteromalidae*) female.

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