

***Telenomus cyamophylax*, n. sp. (Hymenoptera: Scelionidae)
Attacking Eggs of the Velvetbean Caterpillar,
Anticarsia gemmatalis Hübner (Lepidoptera: Noctuidae)**

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Telenomus cyamophylax, sp. n. (Hymenoptera: Scelionidae) Parasitando Ovos da Lagarta da Soja *Anticarsia gemmatalis* Hübner (Lepidoptera: Noctuidae)

RESUMO - *Telenomus cyamophylax* Polaszek, sp.n. é descrita a partir de adultos emergidos de ovos de *Anticarsia gemmatalis* Hübner (Lepidoptera: Noctuidae). A nova espécie pertence ao grupo *californicus* sensu Johnson, 1984. Dados biológicos, incluindo um hospedeiro alternativo, são apresentados.

PALAVRAS-CHAVE: Insecta, controle biológico, parasitóide de ovos, soja.

ABSTRACT - *Telenomus cyamophylax* Polaszek, n. sp. is described from the eggs of the soybean pest velvetbean *Anticarsia gemmatalis* (Hübner) (Lepidoptera: Noctuidae) caterpillar. This new species belongs to the *californicus*-group sensu Johnson, 1984. Biological data, including one alternative host, are given.

KEY WORDS: Insecta, biological control, egg parasitoid, soybean.

The family Scelionidae is entirely composed of egg parasitoids, and includes many species of economic importance as parasitoids of agricultural insect pests (Bin & Johnson 1982, Orr 1988). *Trissolcus basalis* (Wollaston) and *Telenomus podisi* Ashmead are the most important scelionid egg parasitoids of stink bugs (Heteroptera: Pentatomidae) in Brazil (Corrêa-Ferreira 1986, Foerster & Queiroz 1990). *Telenomus remus* Nixon has been introduced against *Spodoptera* spp. in many tropical countries, particularly in South and Central America and the Caribbean islands, and successes have been claimed in several

cases (e. g., Venezuela, Hemandez *et al.* 1989). Various other species of *Telenomus* are reported attacking eggs of other lepidopterous families, for example *T. dalmanni* (Ratz.) in Lymantriidae (De Santis & Vidal-Sarmiento 1979), *T. alceio* (J.C. Crawford) and other members of the *T. californicus* Ashmead group in Pyraloidea (Lima-Filho *et al.* 1979, Pimentel *et al.* 1991), *T. dilophonotae* Cameron and *T. connectans* Ashmead in Sphingidae (Abreu *et al.* 1989, Johnson 1990), as well as unidentified species of *Telenomus* in Lasiocampidae (Fischer & Patel 1993) and Saturniidae (Winder 1976).

Soybean pest management programmes have been in progress in Brazil since 1975 (Kogan *et al.* 1977) and stink bug populations have been successfully reduced by large scale releases of *T. basalis* (Corrêa-Ferreira 1993). The control of lepidopterous larvae, however is largely dependent on chemicals and little effort has been dedicated to the detection of potential natural enemies, such as egg parasitoids. The main defoliator of soybeans is the velvetbean caterpillar *Anticarsia gemmatalis* Hübner (Lepidoptera: Noctuidae) and only *Trichogramma pretiosum* Riley (Hymenoptera: Trichogrammatidae) was previously known to parasitize eggs of *A. gemmatalis* in Brazil (Hohmann *et al.* 1989). Field surveys carried out during the soybean growing seasons of 1994/95 and 1995/96 in Southern Paraná State revealed the occurrence of two other species of egg parasitoids of *A. gemmatalis*: *Trichogramma rojasi* Nagaraja & Nagarkatti and an undescribed species of *Telenomus*, which is the object of the present study.

The existence of a complex of species parasitizing eggs of *A. gemmatalis* indicates that management programmes can be implemented for the velvetbean caterpillar through preservation and augmentation of these species. In this paper, the description of this species is given, together with preliminary biological data obtained in the laboratory.

Materials and Methods

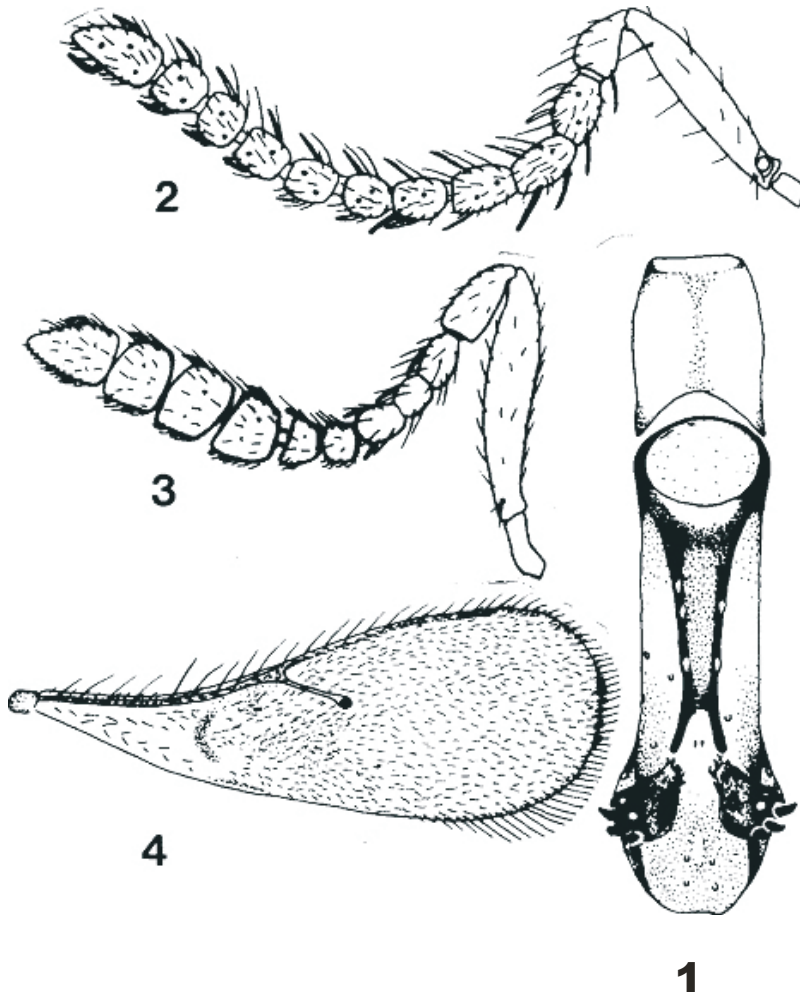
Telenomus were reared from eggs of *A. gemmatalis* collected in a soybean crop in the locality of Lapa, Paraná State, southern Brazil. Specimens were prepared for taxonomic study following the method described in detail by Polaszek & Kimani (1990) requiring card-mounting, followed by slide-mounting male genitalia in Canada Balsam. Morphological terminology follows Johnson (1984). The holotype and several paratypes are deposited in the collections of the Department of Entomology, The Natural History Museum, London (BMNH). Remaining paratypes are deposited in the Department of Entomology,

United States National Museum, Washington (USNM) and in the Entomological Collection "Jesus S. Moure" (DZUP), Curitiba, PR, Brazil.

Taxonomy. The genus *Telenomus* has been little studied at species-level. The western Palearctic species have been keyed and diagnosed by Kozlov & Kononova (1983), based on female morphology. Unfortunately, the most useful character for species recognition in *Telenomus*, at least in several species-groups, is the form of the male genitalia (Johnson 1984, Polaszek & Kimani 1990). Johnson (1984) has made considerable progress towards our understanding of species groups, and of several Nearctic species within some of those groups, and has also produced an invaluable catalogue of world species (Johnson 1992). However, the Neotropical species still remain largely unstudied. Johnson (1992) lists 69 species from the Neotropics, of which several are probably synonyms, and probably many times that number are still undescribed. For the purposes of this description it was not considered worthwhile either tracking down each available type specimen for comparison, or consulting all 69 original descriptions (in many cases largely useless anyway) in order to ascertain beyond doubt that the species described here is new to science. We can at least usefully characterize this species here, and make the name available for studies to develop IPM of soybean which includes *A. gemmatalis*. If a future revision reveals *T. cyamophylax* to be a junior synonym of some other species, this would be unfortunate, but by no means disastrous.

Telenomus cyamophylax Polaszek, new species

Male. General coloration dark brown to black, the fore tibiae and all tarsi paler brown. Genitalia (Fig. 1): Aedeagal lobe about one third the total length of the aedeago volsellar shaft, truncate. Digits large, about half the maximum length of the aedeagal lobe, with three (occasionally four) digital teeth per digitus, teeth



Figures 1-4. *Telenomus cyamophylux* sp. n. 1. male genitalia; 2. male antenna; 3. female antenna; 4. fore wing.

long and robust. Central projection absent. Head with frons entirely smooth and shining, some large reticulation at vertex and around lateral ocelli. Vertex sharply angled, but not carinate. Antennae as in Fig. 2, a prominent sensillum on A5. Eyes hairy. Mesoscutum without notauli, dorselium approximately rectangular, finely sculptured. Fore wing (Fig. 4) with some infuscation at the base and behind

the stigmal vein. T1 of metasoma with two pairs of lateral setae, a single pair of sublateral setae. Basal costae on T2 short. General habitus somewhat 'humpbacked' because of the strongly convex mesosoma and the relatively low attachment of the transverse head.

Female. Head with antenna 11-segmented, clava 5-segmented with A6-10 transverse (Fig.

3); mesosoma and metasoma without any easily observed distinctive characters.

Remarks. *T. cyamophylax* belongs to the *californicus*-group sensu Johnson (1984). Superficially it strongly resembles *T. remus* Nixon, in particular by the 'humpbacked' appearance due to the fact that the transverse head is carried relatively low on the convex mesosoma. No doubt there are several other Neotropical *Telenomus* species, unknown to the authors, that share this character. *T. remus* is also a noctuid parasitoid, attacking eggs of *Spodoptera* spp.

Material Examined. Holotype: male, BRAZIL: Paraná State, Lapa., February, 1996 ex *A. gemmatalis* on soybean (L.A. Foerster) (BMNH, genitalia, one antenna and fore wing on slide TC 1). Paratypes 12 males, 12 females, same data as holotype (BMNH, USNM, DZÜP).

Hosts. Noctuidae *Anticarsia gemmatalis* Hübner, *Pseudaletia sequax* Franclemont.

Distribution. Known so far from Brazil only. Given that *A. gemmatalis* is widespread in the Americas, from U. S.A. to Chile, *T. cyamophylax* is almost certainly more widely distributed.

Biological Data. This species has been successfully reared in laboratory for over 20 generations using eggs of *A. gemmatalis* as hosts. Development from oviposition to adult emergence is inversely proportional to temperature, and ranges from 14 days at 29°C to 40 days at 17°C. Adult longevity was also influenced by the temperature, and survival ranged from 13 days at 29°C to 40 days at 17°C. Apart from *A. gemmatalis*, *T. cyamophylax* also developed and reproduced in eggs of the armyworm *Pseudaletia sequax* Franclemont (Lepidoptera: Noctuidae), but was unable to parasitize eggs of *Spodoptera latifascia* Walker in laboratory.

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