

First record of the family Signiphoridae (Hymenoptera: Chalcidoidea) in Denmark

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Abstract

Clytina giraudi Erdős, 1957 represents the first record of the chalcid family Signiphoridae in Denmark and was found on Amager Island. The species was reared from stems of *Phragmites australis* (Poaceae) containing galls of *Lipara lucens* Meigen, 1830 (Diptera: Chloropidae). The external morphology of *Clytina giraudi* is illustrated. Some distributional, morphological and biological features of *Clytina giraudi* and other members of the family Signiphoridae are discussed.

Dansk sammendrag

Clytina giraudi Erdős, 1957 er det første fund af Signiphoridae (Hymenoptera: Chalcidoidea) i Danmark, indsamlet på Amager. Den blev klækket fra stængler af tagrør, *Phragmites australis* (Poaceae), der var infesteret med galler af *Lipara lucens* Meigen, 1830 (Diptera: Chloropidae). Den eksterne morfologi af *C. giraudi* illustreres. Biologiske, morfologiske og udbredelsesmæssige aspekter af *C. giraudi* og andre medlemmer af Signiphoridae diskuteres.

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Introduction

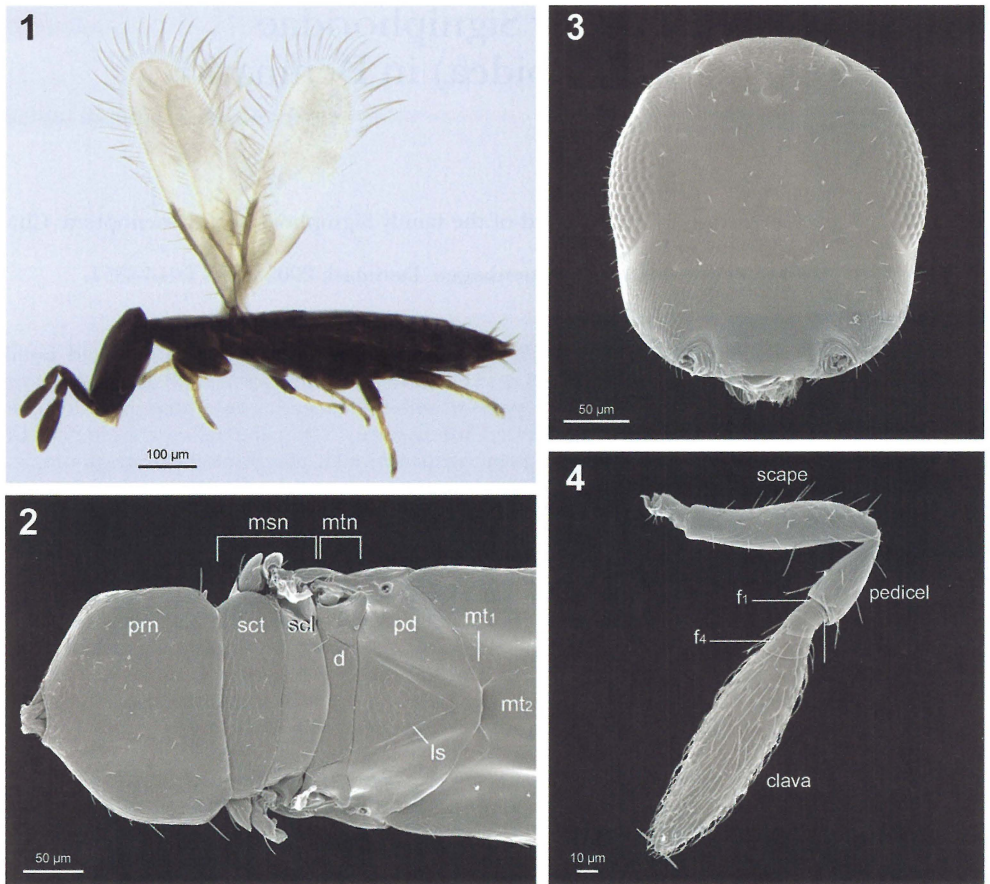
The Signiphoridae (previously called Thysanidae) is a small family of Chalcidoidea containing 76 described species in four genera (Noyes 2003). An extensive revision of the family was undertaken by Woolley (1988). Although Signiphoridae are a cosmopolitan group most species are rarely collected. This is the first record of the family from Denmark, represented by *Clytina giraudi* Erdős, 1957.

Materials and methods

The external morphology of *Clytina giraudi* was illustrated by stereomicroscope images compiled with Auto-Montage 4.02 (Syncroscopy). For the SEM examinations specimens were dissected and transferred to 99% ethanol in an ethanol series. The specimens were then critical-point dried, mounted on SEM stubs, sputter-coated with gold-platinum and observed in JEOL JSM-6335-F.

Results and Discussion

A total amount of 156 specimens (144 females and 12 males) was reared from a sample of 226 grass stems of *Phragmites australis* containing galls of *Lipara lucens* Meigen, 1830 (Diptera: Chloropidae) with the following collection data: NEZ, Amager, Kalvebod Fæl-



Figs 1-4: *Clytina giraudi* ♀ – 1 Habitus; 2 mesosoma, dorsal view; 3 head; 4 antenna.
 (d = dorsellum; f_{1+4} = 1st + 4th funicular segment; ls = lateral sulcus; msn = mesonotum; mtm = metanotum; mt_1 = 1st metasomal segment; mt_2 = 2nd metasomal segment; sct = mesoscutum; scl = mesoscutellum; pd = propodeum; prn = pronotum).

led, 09.v.2004, L. Krogmann leg. Voucher specimens are deposited in the collections of the Zoological Museum, University of Copenhagen and the Zoological Museum, University of Hamburg.

The family Signiphoridae is probably most diverse in the Neotropical region and represented in Europe by about ten species (Gauld & Bolton 1988). Records from other Scandinavian countries include *Chartocerus subaeneus* (Förster, 1878) from Sweden (Hansson 1991) and *Thysanus ater* Walker, 1840 from Norway (Hansen 2000).

Signiphoridae are minute parasitic wasps that are about 0,5-2 mm in length. The body is black or brownish, rarely with yellowish areas. The antenna are modified into 2-4 short, ringlike funicle segments followed by a long unsegmented clava (Woolley 1997). The mesonotum is lacking any external impressions like notauli on the mesoscutum or axillae on the mesoscutellum (Fig. 2). The propodeum is enlarged and differentiated into a triangular median area marked by lateral sulci. These sulci are continuous with the submedian sulci, indicating the dorsellum of the metanotum (Fig. 2). The wings are usually broadly fringed with reduced postmarginal and stigmal veins (Fig. 1). The legs

have 5-segmented tarsi and most species are characterized by having 1-4 long spines on the mesofemora and an obconic mesotibia with long, dorsal spines (Woolley 1997).

An additional feature of Signiphoridae is the broadly sessile metasoma (Fig. 2) that is also present in the chalcid families Aphelinidae and Trichogrammatidae; these two families are possibly closely related to Signiphoridae. The first metasomal segment (=second abdominal segment) in apocritan Hymenoptera is usually separated from the propodeum (=first abdominal segment) by a constriction that is referred to as wasp-waist; this feature is entirely missing in these families. According to Woolley (1988) the tergum of the first metasomal segment is transverse in some species of Signiphoridae, a condition that is also found in Aphelinidae and Trichogrammatidae. In other signiphorids it is further reduced into a pair of submedian lobes (Fig. 2).

Clytina giraudi is the only described species of the genus to date, although Woolley (1988) mentions a second undescribed species from Costa Rica. *C. giraudi* can be distinguished from other Signiphoridae by the flattened body and the subrectangular, prognathous head (Figs 1, 3). The antennal funicle bears four anelliform segments in the female (Fig. 4) and three in the male. The pronotum is greatly enlarged, its median length surpassing the combined length of mesonotum and metanotum (Fig. 2). The subcylindrical mid tibiae that lack long spines are further characteristics of *C. giraudi* (Woolley 1988).

Signiphoridae are known as parasitoids of cyclorrhaphous Diptera, scale-insects (Homoptera; Coccoidea), white-flies (Homoptera: Aleyrodidae) or other parasitic Hymenoptera (Noyes 2003). *Clytina giraudi* has been described as a gregarious pupal parasitoid of chloropid species (Diptera) associated with *Phragmites australis* (Erdős 1957, Noyes 2003). The female holotypus and a male "allotypus" of *C. giraudi* were reared by Erdős (1957) from a single puparium of *Cryptonevra* (= *Haplegis*) *flavitaris* (Meigen, 1830) (Diptera: Chloropidae) in *Phragmites australis*. The 15 female paratypes from three different localities were all associated with *Phragmites australis* including a sample of 11 females emerging from puparia within the leaves of galls from *Lipara lucens*.

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