

**Notes on *Xylocopa caffra* (A LINNÉ, 1767) (Hymenoptera: Apidae)  
and its parasitoid *Coelopencyrtus* sp. (Hymenoptera:  
Chalcidoidea: Encyrtidae) in the Republic of Seychelles,  
with an annotated catalogue of the genus  
*Coelopencyrtus* TIMBERLAKE, 1919 of the Ethiopian region**

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Abstract

The encyrtid genus *Coelopencyrtus* TIMBERLAKE, 1919 is recorded from the Republic of Seychelles for the first time. *Coelopencyrtus* sp. is a parasitoid of the carpenter bee *Xylocopa caffra* (A LINNÉ, 1767). Biological observations are reported. A commented catalogue of the Ethiopian species of the genus *Coelopencyrtus* is added.

Key words: *Xylocopa*, defense behaviour, *Coelopencyrtus*, first record, foraging behaviour, adult dispersal, Seychelles

Zusammenfassung

Die Erzwespen-Gattung *Coelopencyrtus* TIMBERLAKE, 1919 (Hymenoptera: Encyrtidae) wird erstmals für die Republik Seychellen nachgewiesen. Dort parasitiert *Coelopencyrtus* sp. die Holzbiene *Xylocopa caffra* (A LINNÉ, 1767). Beobachtungen zur Biologie werden mitgeteilt. Ein kommentierter Artenkatalog der Gattung *Coelopencyrtus* aus der äthiopischen Faunenregion ist beigefügt.

Introduction

The genus *Coelopencyrtus* TIMBERLAKE, 1919 (Encyrtidae) is distributed worldwide and is represented in the Ethiopian region by seven species. Whenever their hosts are known, the species are parasitoids of bees (Apidae and Colletidae). To date, four species are known as parasitoids of carpenter bees, *Xylocopa* spp. (Apidae) (PRINSLOO 1983: 7; GRISSELL 2007: 258, 259). A key to genera of Ethiopian Encyrtidae is presented by PRINSLOO & ANNECKE (1979).

In the course of a survey in the Republic of Seychelles an undescribed species has been collected at Hotel La Roussette in Anse aux Pins on Mahé, the main island of the Inner Seychelles or Seychelles proper, during a stay in March 2011.



Figs. 1 - 4 : (1) *Coelopencyrtus* sp. above the nest entrance of of *Xylocopa caffra*, trying to enter the nest. (2) Freshly emerged imagines of *Coelopencyrtus* sp. near the nest of *Xylocopa caffra*. (3) Infested larva in the entrance of the nest. (4) Salticid spider hunting imagines of *Coelopencyrtus* sp. (Photos: M. Madl).

### ***Coelopencyrtus* sp. near *krishamurtii* (MAHDIHASSAN, 1957)**

Material examined: Mahé, Anse aux Pins (Hotel La Roussette), 31.X.2011 leg. M. Madl, 1 ♀.

Host: *Xylocopa caffra* (A LINNÉ, 1767). The host is widely distributed in the Ethiopian region. In the Inner Seychelles it is known from Mahé, Chauve Souris (near Mahé), Conception, Thérèse, Silhouette, Ile du Nord, Praslin, Cousin, Cousine, Curieuse, La Digue, Félicité, Grande Sœur, Marianne, Aride, Denis, and Bird.

Distribution: Inner Seychelles: Mahé.

Comments: This represents the first record of *Coelopencyrtus* in the Republic of Seychelles. The female specimen collected in October 2011 (further specimens were lost) could not be assigned to any known species, although it appears near to *Coelopencyrtus*

*krishamurtii* (MAHDIHASSAN, 1957), a species recorded as parasitoid of *Xylocopa tenuiscapa* WESTWOOD, 1840 in India.

**Biological observations** (Madl, personal observations): *Coelopencyrtus* sp. has been observed running up and down the columns of the bungalows searching for *Xylocopa caffra* nests. The penetration of guarded nests is not easy (Fig. 1). During a successful case the female parasitoid was thrown out of the nest three times by a *Xylocopa* female. The duration in the nest usually depends on the numbers of tunnels and guarding *Xylocopa* females and maybe also of males. The longest stay was about 12 minutes in a nest with several tunnels. After a successful stay the parasitoid always flew away from the column.

The emergence of *Coelopencyrtus* sp. was observed on 26 March 2011. At the beginning of the observations (11:54) a great number (about 120 specimens) of freshly emerged imagines were running on the column mainly above the infested nest (Fig. 2), which was inhabited by a single *Xylocopa* female. Some of them tried to enter the nest again. The *Xylocopa* female was busy throwing out parasitoids. After having driven out emerging or returning parasitoids, the female blocked the entrance hole for a short time with her abdomen. Then she started to rasp in the upwards directed tunnel. At 11:56 sawdust was falling from the entrance hole for the first time and some minutes later (12:01) the infested larva with still emerging parasitoids (Fig. 3). Now some imagines of *Coelopencyrtus* sp. tried to enter the nest again, whereas the *Xylocopa* female continued her activities in the upwards directed tunnel. At 12:07 the female moved the infested larva shortly upwards and threw it out. After this event the imagines of *Coelopencyrtus* sp. began to leave the nest area gradually by running before flying away, whereas the *Xylocopa* female started to restore the nest in the upwards directed tunnel. At 12:22 it removed the last sawdust from the entrance hole. Other parasitoids were still emerging from the larva on the ground, but they immediately started flying off.

A predator of *Coelopencyrtus* sp. is a salticid spider (Fig. 4). During my observations it caught imagines of *Coelopencyrtus* sp. twice. It seems, that the spider prefers this prey, because no other insects of the same size, e.g. ants, were attacked. The spider spent the night hidden in crevices on columns near nests of *Xylocopa caffra*.

### **Annotated catalogue of the genus *Coelopencyrtus* TIMBERLAKE, 1919 in the Ethiopian region**

Abbreviations: biol. – biology; cat. – catalogue; descr. – description; fig. (figs.) – figure(s); tax. – taxonomy.

#### ***Coelopencyrtus bekiliensis* (RISBEC, 1952)**

*Coccidoxenus bekiliensis* n. sp.: RISBEC 1952: 30 (descr. ♀, Madagascar), 31 (figs. 9a-d).

*Coccidoxenus bekiliensis* RISBEC, 1952: ANNECKE 1964: 390 (tax.).

*Coelopencyrtus bekiliensis* (RISBEC, 1952): ANNECKE 1968: 249 (tax., Madagascar); ANNECKE & INSLEY 1971: 10 (tax., cat.), 38 (tax., Madagascar); NOYES & PRINSLOO 1998: 81 (tax., Madagascar), 94 (tab. 2: tax.).

Host: Unknown.

Distribution: Endemic in Madagascar.

#### ***Coelopencyrtus callainus* ANNECKE, 1968**

*Coelopencyrtus callainus* spec. nov.: ANNECKE 1968: 250 (figs. 2-5), 251 (descr. ♂ ♀, biol., Mozambique, South Africa, Zimbabwe).

*Coelopencyrtus callainus* ANNECKE, 1968: ANNECKE & INSLEY 1971: 10 (cat.); PRINSLOO 1983: 7 (host-parasite cat.); EARDLEY 1987: 2 (host-parasite cat.), 5 (host-parasite cat. (two host species)), 8 (host-parasite cat.); GRISSELL 2007: 258 (host-parasite cat.); EARDLEY & URBAN 2010: 341 (host-parasite cat.), 346 (host-parasite cat.), 347 (host-parasite cat.), 353 (host-parasite cat.), 547 (app. 2: parasite cat.).

*Giraultella* sp.: ANNECKE & DOUTT 1961: 198 (tax., biol., South Africa); TAYLOR 1961: 221 (biol., South Africa).

Hosts: *Xylocopa caffra* (A LINNÉ, 1767), *Xylocopa flavicollis* (DEGEER, 1778) (syn.: *Xylocopa divisa* KLUG, 1807), *Xylocopa flavorufa* (DEGEER, 1778), *Xylocopa inconstans* SMITH, 1874.

Distribution: Mozambique, South Africa, Zimbabwe.

### ***Coelopencyrtus cyprius* ANNECKE, 1968**

*Coelopencyrtus cyprius* spec. nov.: ANNECKE 1968: 255 (figs. 11-15), 256 (descr. ♂ ♀, biol., South Africa, Zimbabwe).

*Coelopencyrtus cyprius* ANNECKE, 1968: ANNECKE & INSLEY 1971: 10 (cat.); PRINSLOO 1983: 7 (host-parasite cat.); GRISSELL 2007: 258 (host-parasite cat.).

Host: *Xylocopa scioensis* GRIBODO, 1884. EARDLEY (1983: 35) identified the host record *Xylocopa* sp. by ANNECKE (1968: 256) as *Xylocopa scioensis* GRIBODO, 1884. This host record is not mentioned by EARDLEY (1987: 12) and EARDLEY & URBAN (2010: 363, 547).

Distribution: South Africa, Zimbabwe.

### ***Coelopencyrtus nothylaei* ANNECKE, 1968**

*Coelopencyrtus nothylaei* spec. nov.: ANNECKE 1968: 242 (descr. ♂ ♀, biol., South Africa), 253 (figs. 6-10).

*Coelopencyrtus nothylaei* ANNECKE, 1968: PRINSLOO 1983: 7 (host-parasite cat.), GRISSELL 2007: 258 (host-parasite cat.); EARDLEY & URBAN 2010: 30 (host-parasite cat.), 547 (app. 2: parasite cat.).

Host: *Hylaeus heraldicus* (SMITH, 1853) (Colletidae).

Distribution: South Africa.

### ***Coelopencyrtus ivorensis* (RISBEC, 1953)**

*Erycidnus ivorensis* n. sp.: RISBEC 1953: 578 (descr. ♀ (not ♂), Ivory Coast), 579 (figs. 6a-d).

*Erycidnus ivorensis* RISBEC, 1953: KERRICH 1967: 180 (tax., Ivory Coast); ANNECKE & INSLEY 1971: 12 (cat.).

*Coelopencyrtus ivorensis* (RISBEC, 1953): NOYES & PRINSLOO 1998: 82 (tax., Ivory Coast).

Host: Unknown.

Distribution: Ivory Coast.

### ***Coelopencyrtus taylori* (ANNECKE & DOUTT, 1961)**

*Giraultella taylori* new species: ANNECKE & DOUTT 1961: 195 (descr. ♂ ♀, biol., South Africa), 197 (figs. 1-8).

*Coelopencyrtus taylori* (ANNECKE & DOUTT, 1961): ANNECKE 1968: 249 (tax., biol., South Africa, Zimbabwe), 250 (fig. 1), 251 (descr. ♂ ♀); ANNECKE & INSLEY 1971: 10 (cat.); PRINSLOO 1983: 7 (host-parasite cat.); EARDLEY 1987: 5 (host-parasite cat.); GRISSELL 2007: 258 (host-parasite cat.); EARDLEY & URBAN 2010: 348 (host-parasite cat.), 547 (app. 2: parasite cat.).

*Giraultella* n. sp.: TAYLOR 1961: 220 (biol., South Africa).

Hosts: *Xylocopa caffra* (A LINNÉ, 1767), *Xylocopa flavorufa* (DEGEER, 1778). The host record *Xylocopa flavicollis* by EARDLEY (1987: 5), EARDLEY & URBAN (2010: 347) and

NOYES (2012) is an error. *Xylocopa caffra* is not mentioned as host by EARDLEY (1983: 2) and EARDLEY & URBAN (2010: 341).

Distribution: South Africa, Zimbabwe.

***Coelopencyrtus watmoughi* ANNECKE, 1968**

*Coelopencyrtus watmoughi* spec. nov.: ANNECKE 1968: 256 (descr. ♂ ♀, biol., Zimbabwe), 257 (figs. 16-20).

*Coelopencyrtus watmoughi* ANNECKE, 1968: ANNECKE & INSLEY 1971: 10 (cat.); PRINSLOO 1983: 7 (host-parasite cat.); EARDLEY 1987: 5 (host-parasite cat.); GRISSELL 2007: 259 (host-parasite cat.); EARDLEY & URBAN 2010: 349 (host-parasite cat.), 547 (app. 2: parasite cat.).

Host: *Xylocopa flavorufa* (DEGEER, 1778).

Distribution: Zimbabwe.

***Coelopencyrtus* sp. near *krishamurtii* (MAHDIHASSAN, 1957)**

Material examined: Seychelles: Inner Seychelles: Mahé: Anse aux Pins.

Host: *Xylocopa caffra* (A LINNÉ, 1767).

Distribution: Seychelles.

***Coelopencyrtus* sp. 1**

*Coelopencyrtus* sp.: PRINSLOO 1983: 7 (biol., without locality); GRISSELL 2007: 258 (host-parasite cat. partim).

Host: *Xylocopa watmoughi* EARDLY, 1983, a species only known from South Africa.

Distribution: South Africa.

***Coelopencyrtus* sp. 2**

*Coelopencyrtus* sp.: GESS 1981: 32 (biol., South Africa), 76 (fig. 37: biol.).

kleiner Chalcidier: BRAUNS 1913: 118 (biol., South Africa).

Host: *Xylocopa sicheli* VACHAL, 1898.

Distribution: South Africa.

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