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***Volvicoccus stipae* (BORCHSENIUS, 1949) in Poland
(Hemiptera: Coccoidea)**

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ABSTRACT. *Volvicoccus stipae* (BORCHSENIUS, 1949) was recorded for the first time in Poland in 2008. Data on the new record of this species, distribution, host plants and morphology are given.

KEY WORDS: scale insects, *Volvicoccus stipae*.

INTRODUCTION

According to GOUX (1945), the genus *Volvicoccus* GOUX, 1945 belongs to the family Pseudococcidae. It contains three species: *V. alpinus* MATILE-FERRERO, 1983; *V. stipae* (BORCHSENIUS, 1949) and *V. volvifer* (GOUX, 1945). All of them occur only in the Palaearctic. They live in leaf sheaths or rarely on roots of the host plant (BEN-DOV 1994).

Volvicoccus stipae (Fig. 1) was recorded in Armenia, Bulgaria, Hungary, Ukraine (BEN-DOV 1994) and in Turkey (KAYDAN et al. 2005, KAYDAN et al. 2007). This species was noted in Poland for the first time in 2008 (KALANDYK & WĘGIEREK 2010). This genus had never been reported from Poland before.

Plant species noted as hosts of *V. stipae* are: *Aegilops* sp. (KAYDAN et al. 2005), *Stipa* sp. (BORCHSENIUS 1949, TER-GRIGORIAN 1966, 1973, KOZÁR et al. 1977, KOSZTARAB & KOZÁR 1988; BEN-DOV 1994, KAYDAN et al. 2005), *Stipa capillata* (KOZÁR et al. 1977, KOZÁR & WALTER 1986, BEN-DOV 1994), *Stipa lessingiana* (TEREZNIKOVA 1975), *Stipa pennata* (KOZÁR 1999), *Stipa pulcherrima* (TEREZNIKOVA 1975, BEN-DOV 1994),

Taeniatherum asperum (KOZÁR et. al. 1979, BEN-DOV 1994), *Festuca ovina* (KALANDYK & WEGIEREK 2010), *Koeleria glauca*. All of these plant species belong to the family Poaceae.

According to the criteria adopted by NICKEL and REMANE (2002), *V. stipae* is a 1st degree oligophage, i.e. it feeds on plants belonging to one family.

Volvicoccus stipae is considered to be a steppe species (KOZÁR & WALTER 1986). Its biology is unknown (KOSZTARAB & KOZÁR 1988).

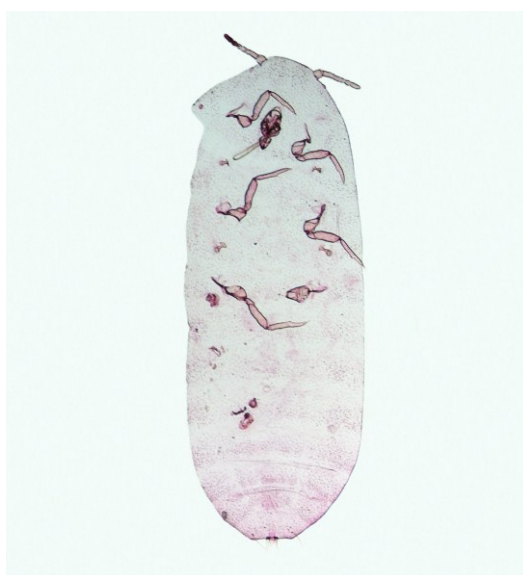


Fig. 1. *Volvicoccus stipae* (BORCHSENIUS 1949) – ventral view.

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MATERIAL EXAMINED

1. Wyżyna Śląska, Garb Tarnogórski: Nowa Wieś near Mierzęcice, psammophilous grassland of the alliance *Corynephorion canescentis* of the *Koelerio glaucae*-

Corynephoretea canescentis class dominated by *Festuca ovina* and *Corynephorus canescens*; 20.08.2008, 3 females on *Festuca ovina*, leg. M. Kalandyk-Kołodziejczyk, det. E. Podsiadło (KALANDYK & WĘGIEREK 2010).

2. Wyżyna Śląska, Garb Tarnogórski: southern part of Pustynia Błędowska near Klucze, psammophilous grassland of the alliance *Corynephorion canescentis* of the class *Koelerio glaucae-Corynephoretea canescentis* with *Corynephorus canescens* and *Koeleria glauca*, 25.09.2010; 1 female on *Koeleria glauca*, leg. M. Kalandyk-Kołodziejczyk, det. M. Kalandyk-Kołodziejczyk and E. Simon.

DESCRIPTION OF ADULT FEMALE

Body elongate, up to 3.5 mm long and 1.1 mm wide (Fig. 2). Eyes distinct, antennae fully developed, 7-segmented with the apical segment longest (4th segment sometimes incompletely divided), 257-270 µm long. Stylet loop reaches the line between anterior spiracles. Spiracles with several associated trilocular pores. Legs normally developed, 5-segmented, claws without denticle. Hind coxae with many translucent pores, larger than fore and middle coxae. Circulus present about oval form or absent. Two pairs of dorsal ostioles present, their lips with a few trilocular pores. Dorsum without any cerarii; C 18 replaced by 4 setae with the apical longest. Anal lobes poorly developed. Anal ring about 68 µm in diameter, with 6 setae and a double row of pores. Trilocular pores numerous distributed on both body surfaces. Abundant multilocular pores occur at the ventral body margins. They are present on the 4th abdominal sternite, more numerous on the 5th and 6th. On the 7th and 8th sternites of the abdomen they form transverse bands. Characteristic oral collar ducts distributed along the marginal part of the body and numerous on the 5th-8th sternites of the abdomen; they are scattered singly on the ventral body surface. Body setae thin and short.

DISCUSSION

Volvicoccus is one of the genera characterized by the absence of cerarii (GAVRILOV 2007). Another genus without any distinct cerarii is *Longicoccus* DANZIG, 1975. The difference between them is the absence (*Volvicoccus*) or presence (*Longicoccus*) of a claw denticle (KOSZTARAB & KOZÁR 1988).

Volvicoccus stipae was previously included in the genus *Mirococcopsis* BORCHSENIUS, 1948 (e.g. TEREZNIKOVA, 1975; KOSZTARAB & KOZÁR 1988, TANG 1992). Because of the presence of characteristic oral collar tubular ducts (with the collar placed in the middle part of the duct) this species was transferred to the genus *Volvicoccus* (GAVRILOV 2007). This transfer had earlier been suggested by other authors. KOZÁR (1981) was of the opinion that

the genus *Mirococcopsis* might be a synonym of *Volvicoccus*. MATILE-FERRERO (1983) suggested that *Volvicoccus volvifer* might be a synonym of *Mirococcopsis stipae*. Diagnostic characters and a key to that species are given by BORCHSENIUS 1949, TER-GRIGORIAN 1973, TEREZNIKOVA 1975, KOSZTARAB & KOZÁR 1988, TANG 1992. Illustrations are given by TEREZNIKOVA (1975) and TER-GRIGORIAN (1973).



Fig. 2. *Volvicoccus stipae* – adult female, a – antenna, b – hind coxa with translucent pores, c – oral collar tubular duct.

Specimens collected in Poland show some morphological variability. One of the four specimens does not have a circulus. The multilocular pores on the head at the base of the antennae as they were described by KOSZTARAB and KOZÁR (1988) were observed only in the one specimen collected in Pustynia Błędowska. The Polish specimens are also smaller than those described by KOSZTARAB and KOZÁR (1988). Other characters, like abundant multilocular pores on the terminal abdominal sternites and the most characteristic feature – the oral collar tubular ducts with the collar placed in the middle part of the duct – are present in all specimens.

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