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Description of fundatrix of *Anoecia vagans* (KOCH, 1856) (Hemiptera: Aphididae)

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ABSTRACT. The first description of fundatrix morph of *Anoecia vagans* (Hemiptera, Aphididae) is presented. Morphological traits distinguishing it from fundatrix of *A. corni* are presented.

Key words: entomology, taxonomy, aphids, Anoeciinae, stem-mother.

INTRODUCTION

Genus *Anoecia* KOCH, 1857, nominative for the subfamily Anoeciinae TULLGREN, 1909, is one of more taxonomically difficult among aphids. Its taxonomic position is uncertain, despite some molecular studies including representatives of this genus (ORTIZ-RIVAS & MARTINEZ-TORRES 2010). Also within the genus there are significant problems with proper species recognition, which concerns mainly alate females and fundatrices. Life cycles of many species are uncertain, with cases of sexually reproducing lines and constantly parthenogenetic combined with presence or absence of host alternation. Morphological features often overlap between species (DEPA 2010). Most of them are described only on the basis of apterous viviparous females on secondary hosts, which in vast majority are representatives of the family Poaceae. Fundatrices of many species, feeding on *Cornus* sp., are either unknown or are regarded to be undistinguishable from fundatrix of *A. corni* (HEIE 1980, NIETO-NAFRÍA et al. 1998).

A. vagans (KOCH, 1856) is a species widespread in Europe, host alternating between *Cornus sanguinea* and various Poaceae. A significant feature of this species is that its fundatrigeniae are exclusively alate, and unlike other European species, have no

sclerotic plate on their abdominal tergites (Fig. 1) (ZWÖLFER 1958, HEIE 1980, NIETO-NAFRÍA et al. 1998).

The aim of this study is to present first description of fundatrix of *A. vagans*, with reference to morphology of fundatrix of *A. corni*, as it is so far the only morphologically distinguished fundatrix of the genus *Anoecia*.

COLLECTION DATA

14.05.2011, Cieszyn, N: 49°44'2.98" E: 18°37'50.90", inflorescence of *Cornus sanguinea*, 2 fundatrices, 1 alate fundatrigenia of *Anoecia vagans*, leg. and det. Ł. Depa. The collection of alate fundatrigenia (Fig. 1) from the same colony allowed the correct determination of fundatrices.

For comparison with fundatrix of *A. corni*, the following specimens of *A. corni* were examined:

30.04.2009, Piekary Śląskie, N: 50°22'15.54" E: 18°57'20.26", inflorescence of *Cornus sanguinea*, 4 fundatrices, leg. and det. Ł. Depa;

02.05.2009, Piekary Śląskie, N: 50°23'45.95" E: 18°55'22.00", inflorescence of *Cornus sanguinea*, 5 fundatrices, leg. and det. Ł. Depa;

14.05.2009, Piekary Śląskie, N: 50°23'32.67" E: 18°57'23.43", inflorescence of *Cornus sanguinea*, 4 fundatrices, leg. and det. Ł. Depa.

Microscopic slides are deposited in the collection of Zoology Department, University of Silesia.



1. Alate fundatrigenia of *A. vagans* in microscopic slide

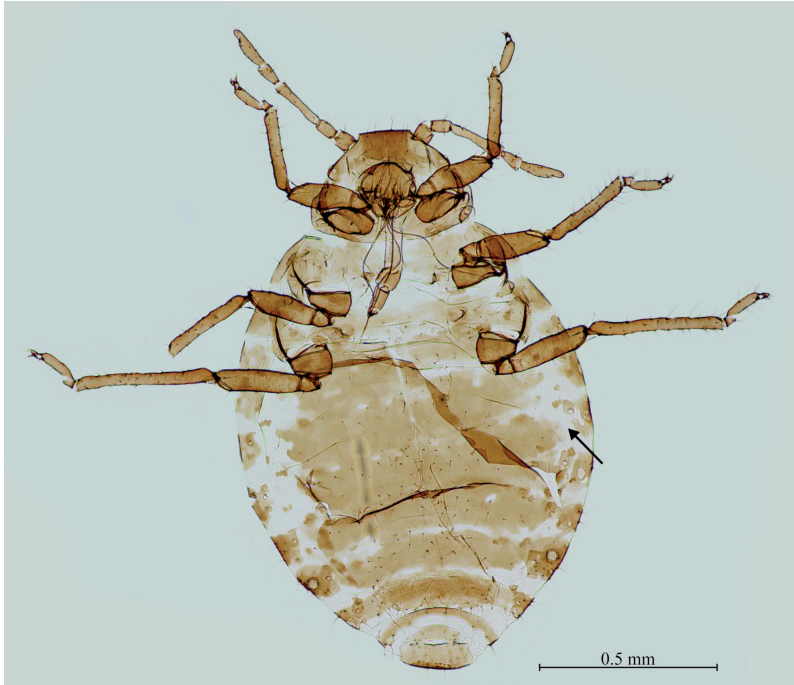
DESCRIPTION

Fundatrix (Fig. 2.)

Body blackish in live specimens, 1.50-1.58 mm long. Head capsule sclerotised, fused with prothorax. Frons straight, darker than rest of head, with 13-15 long, pointed hairs; median suture weak; triommatidium only. Antenna 5- segmented, 0.44-0.48 mm long, 0.29-0.30 of body length, with primary rhinaria only. Length of antennal segments: III 0.141-0.168, IV 0.06-0.07, V 0.126-0.128; ratio of processus terminalis to basal part of antennal segment V 0.36. Rostrum 0.29-0.30 mm long, 0.18-0.20 of body length; ultimate rostral segment 0.080-0.094 mm long, 0.70-0.78 of second segment of hind tarsus, with 2 accessory hairs.

Thorax sclerotised, with well developed and separated dorsal and marginal sclerites. Each segment with row of long, pointed hairs. Meso- and metathoracic furca poorly developed. Legs relatively short, as dark as frons, sparsely covered with pointed hairs. Hind tibiae 0.38-0.40 mm long, 2.50-2.71 of antennal segment III, second segment of hind tarsus 0.114-0.121 mm long.

Abdomen sclerotised, with spino-pleural sclerites - crossbars of tergite II-V fused to form discoidal sclerotic plate, however, in some places those crossbars are not entirely fused. Crossbar on tergite I is partly fused with discoidal plate and crossbars of tergites VI-VIII are separated. Marginal sclerites present on abdominal tergites I-VII, on tergites I-V are separated from discoidal plate. On tergites VI-VII there are single sclerotic bands developed from fused marginal and spino-pleural sclerites.

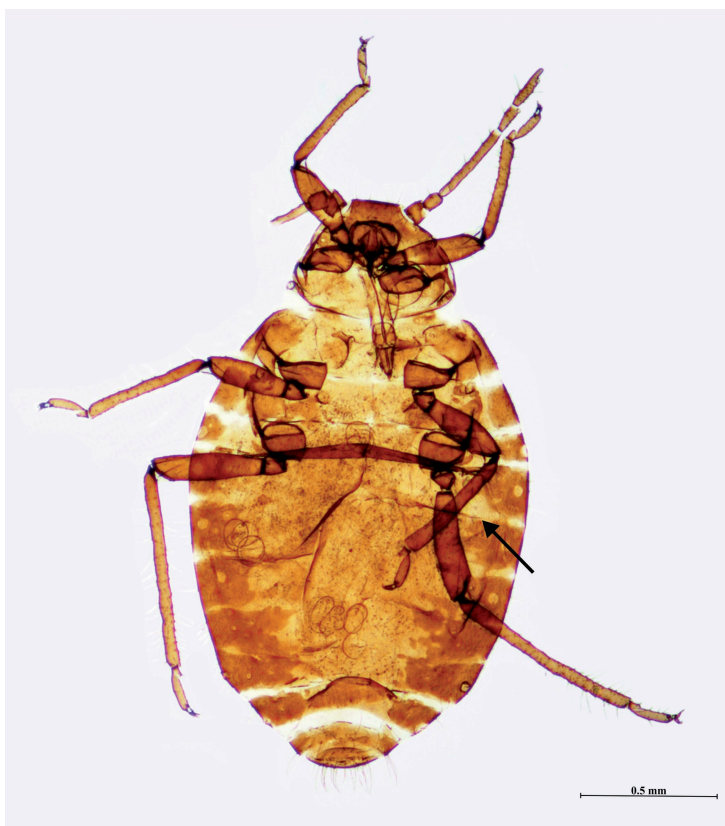


2. Fundatrix of *A. vagans* in microscopic slide (arrow indicates weak marginal sclerotisation)

Marginal tubercles present on marginal sclerites I-VII, however, may be missing from tergites V-VI, varying in size, usually the biggest are on I and VII tergite: 0.037-0.054 mm in diameter, and the smaller ones are on tergites III-VI: 0.0134-0.0201 mm in diameter.

Siphuncular pore on sclerotic plate, covered with fine, pointed hairs, 0.03-0.04 mm in diameter. Spiracles on small scleroites, fused with marginal sclerites.

Abdominal tergites I-VI with single rows of short, pointed or blunt hairs. Tergite VIII with 8 long, pointed hairs, 0.06-0.09 mm long. Subgenital plate rectangular, 0.09-0.011 long and 0.29-0.31 mm wide, covered with many long, pointed hairs. Cauda rounded, covered with many long, pointed hairs.



3. Fundatrix of *A. corni* in microscopic slide (arrow indicates dorsal sclerotic crossbars merged with large marginal plates)

Difference from fundatrix of *A. corni*

There is a set of conspicuous morphological features distinguishing fundatrices of *A. corni* and *A. vagans*. The following morphological traits may serve as a key for determination of fundatrices of both species:

1. Body size: *A. vagans* < 1.59 mm long, *A. corni* > 2.0 mm;
2. Sclerotisation: *A. vagans* – dorsum with sclerotic plates merged only partially, with weak marginal sclerotisation (Fig. 2), *A. corni* – dorsum heavily and uniformly sclerotised, with dorsal sclerotic plates merged with marginal plates (Fig. 3);
3. Accessory hairs on ultimate rostral segment: *A. vagans* – 2, rarely 3; *A. corni* – 4, rarely 3 or 5.

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