Acarologia is proudly non-profit, with no page charges and free open access

Please help us maintain this system by encouraging your institutes to subscribe to the print version of the journal and by sending us your high quality research on the Acari.

Subscriptions: Year 2020 (Volume 60): 450 €
http://www1.montpellier.inra.fr/CBGP/acarologia/subscribe.php
Previous volumes (2010-2018): 250 € / year (4 issues)
Acarologia, CBGP, CS 30016, 34988 MONTFERRIER-sur-LEZ Cedex, France
ISSN 0044-586X (print), ISSN 2107-7207 (electronic)

The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d’avenir » programme (Labex Agro: ANR-10-LABX-0001-01)

Acarologia is under free license and distributed under the terms of the Creative Commons-BY-NC-ND which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author and source are credited.
CONSIDERATIONS ON THE GENUS MULTIOPPIA HAMMER, 1961
NEW SPECIES OF THE GENUS FROM ROMANIA

BY N. A. VASILIU, O. IVAN

(Accepted November 2008)

SUMMARY: A comparative morphological analysis focused mainly on the distribution of the notogastral setae and the shape of the rostral setae has been performed. On this basis the authors propose to divide the genus Multioppia Hammer, 1961 in two subgenera: Multioppia (Multioppia) Hammer, 1961 and Multioppia (Hammeroppia) a new subgenus. The species Multioppia (M.) furcata (Kunst, 1958), Multioppia (M.) furcata carpatica Schalk, 1966, Multioppia (M.) glabra (Mihelčič, 1955) are redescribed, with some new diagnosis elements. Two new species — Multioppia (M.) orghidani and Multioppia (M.) callatisiana — are also described in the present paper.


INTRODUCTION

Within the Oppiidae Grandjean, 1951, in the adult stages, setal dorso-deficiency is manifested in different ways. An appreciable number of genera, belonging to almost all the 11 subfamilies, possess 12 or 13 pairs of notogastral setae; setae $c_1$ and $c_3$ disappear, while seta $c_2$ may take the shape of a small thorn or be reduced up to their alveoli. The species belonging to most of the genera possess 9 or 10 pairs of notogastral setae, setae $c_1$ and $c_3$ disappearing, while the centrodorsal setae disappear together. Usually, seta $c_2$ is normal, only in some cases being reduced to the alveoli. In only few genera, reduction of the notogastral setae is even more drastically manifested, so that even setae from the $h$ and $ps$ rows do disappear (Seniczak, 1975a, b; Balogh, 1983; Subias, 1983; Subias & P. Balogh, 1989; Subias, 2004).

As a cosmopolitan genus, Multioppia Hammer, 1961, possesses 12 pairs of normal notogastral setae, while setae $c_2$ are reduced up to the alveoli. According

1. Biological Research Institute, Lascar Catargi str. 47, 700107 — Iasi, Romania. otivan@yahoo.com.

to the observations of some authors, this genus is heterogeneous. Starting from the shape of the sensillar setae and from the number of their branches, Perez-Iñigo (1982) has distinguished 3 groups of species: radiata, wilsoni and amazonica, while Subias (1989) creates again on the basis of the sensillar setae — 3 subgenera, as follows: Multioppia, Multilanceoppia and Furculoppia. Perez-Iñigo Jr. (1990) and Ivan & Vasiliu (1999) made mention of the different distribution of the notogastral setae versus the lyrifissure im, for a series of species belonging to the genus. Subias (1978) evidences the existence of the setal fields, the different development of which is actually the cause of the shifting or disappearance of certain setae off the notogaster.

The studies of Šeniczak (1975a, b) on the morphology of the preadult stages in 6 oppiid species support the ideas of Subias (1978) about a differentiated development of the setal fields, as well as about the shifting or disappearance of the notogastral setae during the transformation from the tritonymph to the adult stage. As to the notogastral lyrifissures Grandjean (1933) states that “Les fissures antérieure, mediane et postérieure se trouvent à tous les états aux même places”. All the above data led to the idea of a comparative analysis on the distribution of the notogastral setae, at the species of the Multioppia genus, comparatively with the im lyrifissure.

**Materials and method**

Morphological terminology has been taken over from Balogh (1972) and Balogh & Mahunka (1983), while the notation of setae from Grandjean (1934) and Šeniczak (1974, 1975). The material analyzed in the present paper was represented by the collection of species belonging to the genus Multioppia, identified up to now in Romania. Study of the comparative morphology of these species has been extended, with reference to most of the species, described world-wide and belonging to the genus.

For the redescribed or newly described species, seriated measurements on different populations from several habitats — in all possible cases — have been made on the entire body, on body parts and of their setae, and analyzed from a biometric viewpoint. The tables accompanying the study list the maximum and minimum dimensions. For better evidencing the differences among the species, the relative length of the notogastral setae — resulted from a percentual reference of the setal length to the length of the notogaster — has been used.

**Results**

Analysis of the distribution of the notogastral setae versus the im lyrifissure, as well as the analysis of rostral setae aspect, have permitted the differentiation, within the Multioppia Hammer, 1961 of two subgenera as follows:


**Diagnosis**: Setae $c_2$ disappeared (alveoli are present) or of shape of small thorns. Three normal setae in front of lyrifissure im. Setae $d_{\text{a}}$ in centro-dorsal position, setae $l_{\text{m}}$ in lateral position, while $l_{\text{m}}$ tend towards a centro-dorsal position. In all cases, setae $d_{\text{m}}$ occur behind lyrifissure im. Rostral setae largely — arched and barbed along their whole length (Fig. 1)

Multioppia (Multioppia) 1a.— Diagram of the notogastral setae' distribution; 1b.— Rostral seta. 2.— Multioppia (Hammeroppia). 2a.— Diagram of the notogastral setae' distribution; 2b.— Rostral seta.

Multioppia Hammer, 1961, Hammeroppia new subgenus
Type species: Multioppia (Hammeroppia) wilsoni Aoki, 1964.

Diagnosis: setae $c_2$ absent or their alveoli present. Four normal setae in front of lyrifissure $im$. Setae $da$ and $dm$ in centro-dorsal position and setae $la$ and $lm$ in lateral position. Rostral knee-type setae (suctobeloiboid type) with a densely barbed proximal half (Fig. 2).


Multioppia (Multioppia) furcata (Kunst, 1958)
(Figs. 3-5)
(Oppia furcata Kunst, 1958), (Oppia ramulifera Kunst, 1959) (Oppia bulgarica Mahunka, 1987)

Material examined: 4 individuals Semenic Mountains, Fagus silvatica forest, litter; 5 individuals, Mts. Piatra Craiului, Fagus silvatica and Abies alba forest,
Figs. 3-4-5.—Multioppia (M.) furcata. 3.—Dorsal view. 4.—Ventral view. 5.—Lateral view.
### Table 1. Dimensions of the body and of its parts (μm). Minimal and maximal values; D = longitudinal diameter; d = transversal diameter.

<table>
<thead>
<tr>
<th>Species</th>
<th>Body length</th>
<th>Body breadth</th>
<th>Genital aperture D</th>
<th>Anal aperture D</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. (M.) furcata</td>
<td>518-542</td>
<td>343-350</td>
<td>50-57</td>
<td>108-114</td>
</tr>
<tr>
<td>M. (M.) furcata carpatica</td>
<td>552-571</td>
<td>283-320</td>
<td>50-57</td>
<td>120-126</td>
</tr>
<tr>
<td>M. (M.) glabra</td>
<td>391-432</td>
<td>253-276</td>
<td>42-48</td>
<td>72-84</td>
</tr>
<tr>
<td>M. (M.) orghidani</td>
<td>500-535</td>
<td>264-283</td>
<td>48-54</td>
<td>102-108</td>
</tr>
<tr>
<td>M. (M.) callatisiana</td>
<td>572-590</td>
<td>306-324</td>
<td>48-52</td>
<td>102-107</td>
</tr>
</tbody>
</table>

### Table 2. Dimensions of the dorsal setae (μm). Minimal and maximal values for each type of setae; ls/ln = length of setae/length of notogaster ratio (%).

<table>
<thead>
<tr>
<th>Species</th>
<th>Prodorsum</th>
<th>Notogaster</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. (M.) furcata</td>
<td>ss 126-132 in 27-36 le 30-46 ro 52-55 ex 25-27 c2 55-60 da...ps3 16-17</td>
<td></td>
</tr>
<tr>
<td>M. (M.) furcata carpatica</td>
<td>ss 127-132 in 30-42 le 30-42 ro 48-54 ex 24-30 c2 60-66 da...ps3 16-17.8</td>
<td></td>
</tr>
<tr>
<td>M. (M.) callatisiana</td>
<td>ss 120-139 in 38-42 le 38-42 ro 60-72 ex 30-38 c2 32-37 da...ps3 8.8-9.5</td>
<td></td>
</tr>
</tbody>
</table>

litter; 7 individuals, Baia Mare, *Castanea sativa* and *Quercus petraea* forest, litter; 2 individuals, Turu’s Gorges, deciduous forest, litter.

**Description.** Large size species (Table 1), dark chestnut coloured.

**Prodorsum.** The rostrum shows a small rounded incision in apical part. The rostral tectum is bordered on its lateral sides, by two chitinous thickenings connected by a transversal bridge on which the rostral setae originate. This formation circumscribes a trapezoidal area with a thin and transparent tegument. Seen in profile, the rostrum has the aspect of a bent beak.

At the basis of the prodorsum, the dorso-sejugal suture forms a wide bridge which surrounds the basis of the bothridia. In the median area, the bridge evidences a pair of ridges on the top of which 3 pairs of bright spots occur. Laterally, in the posterior half of the prodorsum, 4-5 pairs of ornamentations — occurring as oval thickenings — are observed. No lamellar or translamellar lines are present. The high and narrow bothridial cups have their antero-lateral part turned up towards the exterior, occurring as a small collar. The sensillus is long, cylindrical, and slightly thinner towards the top axis. In its distal half, it evidences 5-7 main branches of which the first 2-3 are long, and the other 4-5 ones — short. The main branches are bifurcated at the top, forming small secondary branches. As actually observed by Perez-Iñigo (1971) and Subias (2001) some variation should be mentioned in the distribution of the secondary branches, even on the sensillar setae of the same individual. In the present study, the authors observed that the secondary branches are very fine and friable, being easily broken during the slides’ manipulation, so that the above observations might be due to this fact. The interlamellar and the exobothridial setae are short, nail-shaped and finely barbed. The lamellar setae, long and fine, possess a unique, long barb, laterally — arranged on the middle of the axis. The rostral setae are long, slightly curved and finely barbed along their whole length (Table 2). Laterally, the propodosoma evidences a rough area bordered by pedotecta 1 and 2, the sejugal ridge and the exobothridial setae.

The **notogaster** which is rounded off has the width/length ratio ranging between 90 and 94%. With the exception of the muscular impressions, the tegument evidences no ornamentations. The *ia, im* and *ip* lyrifissures are small. The *c2* setae are reduced at their alveoli. The other 12 pairs of setae, of equal dimensions, are relatively long, representing 16-17% of the notogaster’s length (Table 2). They are thin, slightly knee-bent, each with 3 small barbs in median position. Localization of the notogastral setae obeys the
Figs. 6-7-8.— *Multioppia* (*M.*) *furcata* ssp. *carpatica*. 6.— Dorsal view. 7.— Ventral view. 8.— Lateral view.
subgenus' diagnosis. The setae $da$, $la$ and $lm$ occur in front of lyrifissure $im$, the other setae being arranged behind it. Setae $lm$ and $lp$ tend to occupy a centrodorsal position, while setae $h_3$ occur at the same level with setae $lp$.

*Epimeral region*. In the area of the sternal apodeme, epimeres 1 and 2 show ornamentation with large, irregular polygons. The setae of epimeres 1 and 2 are short and thin, being approximately equal between them. The epimeres 3+4 have about 2/3 of their surface covered with irregular polygons, smaller — nevertheless — than in the case of the first epimeres. Setae $3a$ and $3b$, of approximately equal length, are thin and smooth. Setae $3c$, three times longer than the first ones are curved, thin and finely barbed. The setae on epimeres 4 are long, thin and smooth.

*Genito-anal region*. The genital aperture small, oval — elongated is surrounded by a thin ring, which is united anteriorly, with apodeme 4. Genital valves are elongated, bearing 5 pairs of short, thin, and smooth setae; 3 of them are placed antero-laterally and 2 — postero-laterally. The aggenital setae are thin and smooth.

The anal aperture, quite large, is ovaly — elongated; the surrounding is large antero-laterally and narrow postero-laterally. The anal setae are short, thin and smooth. Lyrifissure $iad$ is in paraanal position. The adanal setae are in postanal position, with their origins at the extremities of a chitinous, transverse, strongly curved bridge, while setae $ad_1$ and $ad_2$ occur in paraanal position, the former being behind the $iad$ lyrifissure.

*Remarks*. In Romania, the species has been identified only in the West and North — West part of the country, in forest ecosystems.

**Multioppia (Multioppia) furcata** ssp. *carpatica*  
(Schalk, 1966)  
(Figs. 6-8)

**Oppia ramulifera** ssp. *carpatica* Schalk, 1966

**Multioppia (Multilanceoppia) carpatica**  
(Schalk, 1966)

*Material examined*: 15 individuals, Gutâi Mountains, *Picea abies* forest, litter; 25 individuals, Călimani Mts., *Picea abies, Pinus cembra* and *Pinus mugo* forest, litter; 13 individuals, Călimani Mts., *Pinus mugo* brushes, litter; 11 individuals, Ceahlău Mts., *Picea abies* forest, litter; 9 individuals, Parâng Mts., *Fagus silvatica* and *Picea abies* forest, litter; 9 individuals, Retezat Mts., *Fagus silvatica* and *Picea abies* forest, litter.

*Complementary characters*. The morphological and biometric study of the 88 individuals led to the conclusion that this taxon had been correctly declared by its author as a subspecies of *Multioppia (M.) furcata* (Kunst, 1958). Comparatively with it, the subspecies has larger sizes (TABLE 1), while the notogaster is more elongated, being characterized by a width/length ratio of 78-86%. The prodorsum shows the above mentioned morphological characters, the only difference being that the interbothridial bridge is narrower, while the sensillus evidences some peculiarities, as shown in Figs. 6, 18. Thus the sensillar setae, unilaterally pectinated, have a long axis, the basal part being curved, while the peak is thinner and bifurcated. Following the bifurcation, a branch, which usually exceeds the ones from the top, is present; this branch is followed by 6-7 small, spin-shaped branches, which decrease towards the basis of the sensillus. In some cases (e.g. the Călimani population), opposite the sensillus, one may notice 1-2 small, spin-shaped barbs; in other cases (the Gutâi population), a secondary branch may be found on the longer branch yet always asymmetrically on only one sensillus. Ventrally, the alveolar ornamentations on epimeres 1 and 2 are smaller than in the case of *M. (M.) furcata*.

*Remarks*. In Romania, the species is occurring frequently within the whole Carpathian Arch and in the Sub-Carpathians, as well. It prefers the organic horizon of the forests of beech, beech and conifers as well as of the spruce fir forests, reaching even the subalpine level with juniper bushes (Vasiliu, Ivan & Vasiliu, 1993).

**Multioppia (Multioppia) glabra** (Mihelčič, 1955)  
(Fig. 9-11)

*Oppia glabra* Mihelčič, 1955

*Material examined*: 13 individuals, Dragoslavele, 9 individuals, Berevoesti (Argeș county), *Fagus silvatica* forests, litter.
Figs. 9-10-11.— *Multioppia* (M.) *gabra*. 9.— Dorsal view. 10.— Ventral view. 11.— Lateral view.
**Description.** Average sized species (Table 1), light chestnut in colour.

**Prodorsum.** The rostrum is conical evidencing a rounded apical part. The borders of the rostrum are thickened being joined by a thin bridge, on which the rostral setae have their origin. They circumscribe an oval area with a thin translucent tegument. Seen in profile the rostrum appears as a beak with a blunt peak. At the basis of the prodorsum, the dorsosejugal suture forms a bridge that surrounds, with a thin ring, the basis of the bothridial cups. In its median area, the bridge forms a pair of crests exceeding the bothridia; these ridges are extending with 3 pairs of bright spots. Lamellar and translamellar lines are present. Laterally, in the posterior half of the prodorsum there are 4-5 pairs of oval ornamentations. Also laterally, the propodosoma evidences a large rugged area, which covers the sejugal furrow. The bothridial cups are low and large. The sensillus is pectinated, having a long axis, thicker in its median part, while the top is thin and bifurcated. It has 4 or 5 long, unequal branches, and 2-3 small, spin-shaped ones. The rostral setae are long, largely arched and unilaterally barbed along their whole length. The lamellar setae are long, thin and smooth. The interlamellar and the exobothridial setae are shorter and thicker, being nail-shaped (Table 2).

The notogaster is oval, its width/length ratio ranging between 75 and 84%. With the exception of the row of muscular impressions, the notogaster evidences no ornamentations. The ia, im and ip lyrifissures are small. Setae c2 are minute or reduced to alveoli. The other 12 pairs of setae, with equal dimensions are thin and long, representing 23-24% of the notogaster’s length (Table 2). In their median part, the setae have 3 tiny barbs each. Setae’s distribution on the notogaster corresponds to the diagnosis of the subgenus. Consequently, setae da, la and lm occur in front of lyrifissure im, the others being situated behind it. Setae lm and lp tend to occupy a centro-dorsal position.

**Epimeral region.** Epimeres 1 show ornamentation formed of 5 large, oval thickenings, while epimeres 2 evidence a pair of large ornamentations which border the sternal apodeme. The setae of these epimeres are relatively short, smooth and equal in length. Epimeres 3+4 have almost 2/3 of their surface covered with a network of irregular polygons. Setae 3a, 3b, 4a and 4b are equal; setae 3c and 4c are barbed and two times longer than the formers.

**Genitoanal region.** The genital aperture is ovaly rounded off, surrounded by a thin ring which, in its anterior part merges with apodeme 4. On the genital plates, 5 pairs of small setae occur. The aggenital setae are fine and smooth. The anal aperture, oval, elongated is surrounded by a ring, wider in its anterior part. Lyrifissure iad is present in paraanal position. The adanal setae — long, thin and smooth — have equal sizes. In a posterior position of the anal foramen there appears a transverse, curved thickening, at the extremities of which there occur setae ad1 therefore in postanal position. Setae ad2 and ad3 are in paraanal position, the former in front of lyrifissure iad, the latter at the level of the anterior border of the anal aperture.

**Remarks.** In Romania the species may be met in the organic horizon of the deciduous forests (Vasiliu, Ivan & Vasiliu, 1993).

**Multioppia (Multioppia) orghidani** n. sp. (Figs. 12-14)

*Material examined:* 15 individuals, Bârnova (Iași county), Quercus robur, Carpinus betulus and Tilia tomentosa forest, litter and fermentation subhorizon; 18 individuals, Sînesti (Iași county), Quercus robur, Carpinus betulus and Tilia tomentosa forest, litter and fermentation subhorizon.

**Description.** Relatively large sized species, light chestnut coloured.

**Prodorsum.** The rostrum evidences a rounded peak, while the sides are thickened and joined together by a transversal bridge, on which the rostral setae originate. These thickenings delimitate an almost triangular area, with a thin and translucent tegument. At the basis of the prodorsum, the dorsosejugal suture forms a transverse bridge, which surrounds the basis of the bothridial cups. In the median region of the bridge, one may notice a pair of small ridges, which delimitate inside the interlamellar setae.
Figs. 12-13-14.— *Multioppia* (*M.*) *orghidani* n. sp. 12.— Dorsal view. 13 — Ventral view. 14 — Lateral view.
In anterior position, there occur 3 pairs of bright spots. The species possesses no lamellar lines, but only one translamellar line, placed much in front of the lamellar setae’s origin. On the postero-lateral sides of the prodorsum, there appear 5-6 ornamentations, in the form of some oval thickenings. Laterally, the podosoma shows a rugged area, separated by the sejugal furrow.

The bothridial cups have a large aperture, with antero-laterally turned up collar. The sensillus is unilaterally pectinated with a long axis, slightly thickened in its median region, while the peak is thinned and bifurcated. Distally, the sensillus has 3 relatively long branches, followed -proximally- by 3-4 short, spin-shaped branches. The rostral setae are long, largely-arched, unilaterally and finely barbed along their whole length. The lamellar setae are relatively long, thin, with only one barb, in median position. The interlamellar setae are thin and smooth, while the exobothridial ones occurring on a small teat, are rugged. The relation among the length of these setae may be established from Table 2.

The notogaster is oval in shape, with a width/length ratio of 80-81%. With the exception of the row of muscular impressions, this shield has no ornamentations. Lyrifissures ia, im and ip are small. The c2 setae are reduced to alveoli. The others 12 pairs of setae have equal dimensions, thin and relatively short, representing 11-11.5% of the notogaster’s length (Table 2). In their median part the setae have each 3 fine barbs, arranged unilaterally. The distribution of the setae is characteristic for the subgenus. Setae da, la and lm occur in front of lyrifissure im, the others ones being behind it. Setae hm and lp have the tendency to line to the centro-dorsal setae, while setae h₃ mounts up to the vicinity of lyrifissure im.

Epimeral region. Epimeres 1 are rugged on their whole surface, having each, 3 polygonal ornamentations on the margin of apodeme 2. The setae are fine and smooth, 1c being longer than 1a and 1b. Epimeres 2 have no ornamentations; setae 2a are equal in length with those of epimeres 1. Epimeres 3+4 have 2/3 of their surface covered with ornamentation with irregular polygons. Setae a and b are fine and smooth, with approximately equal sizes, while setae 3c and 4c, barbed, are almost twice longer than the first ones.

Genitoanal region. The genital aperture, ovaly elongated, shows a thickened ring, interrupted in its posterior part, while in anterior position it is merged with apodeme 4. The genital valves have, each, 5 relatively long, thin and smooth setae. The anal aperture is almost round, bordered by a thin ring. In posterior position to the anal ring there occurs a small transversal thickening, at the extremities of which the origin of setae ad₁ is to be found. The aggenital and adanal setae are thin and smooth, ad₁ is postanal, while ad₂ and ad₃ in paraanal position. Lyrifissure iad is situated paraanally.

Remarks. M. (M.) orghidani is comparable with M. (M.) furcata and M. (M.) furcata carpatica. The differences to be mentioned are: the presence of a translamellar line, the shape of the sensillus, the longer and smooth in setae, the short and differently situated notogastral setae, as well as the epimeres’ ornamentation.

In Romania the species was found in mixed Quercus forests of oak and common oak with hornbeam and lime tree, in the Central Moldavian Plateau.

Derivatio nominis. The species has been given its name in the memory of the distinguished acarologist Traian Orghidan.

**Multioppia (Multioppia) callatisiana** n. sp.
(Figs. 15-17)

Material examined: 7 individuals collected by means of some traps with attractants arranged in a drilling that penetrates the Sarmatian Karstfield lime stones and a cave gallery from the Movile Karstic region near Mangalia (Constanta county).

Description. Large size species (Table 1), with a yellowish-dark chestnut colour.

Prodorsum. The rostrum has a rounded off apex, while the borders are thickened, joined by a transverse bridge, on which the rostral setae originate. This formation circumscribes a semi-oval area, with a thin and translucent tegument. Half-face the rostrum appears as a curved blunt beak. At the basis of the prodorsum, the dorso-sejugal suture forms a transverse bridge, which surrounds only partially the bothridial cups, being then continued with the sejugal
Figs. 15-16-17. *Multioppia (M.) callatisiana* n. sp. 15.—Dorsal view. 16.—Ventral view. 17.—Lateral view.
furrow. In median position, this bridge evidences 2 small ridges, between which 3 pairs of small bright spots may be observed. The species possesses no lamellar or translamellar lines. On the postero-lateral sides of the prodorsum, 4-5 ornamentations occur, in the form of oval thickenings. Laterally, the propodosoma has a large rugged area, which covers the sejugal furrow as well. The bothridial cups are small. The sensillus has a long axis, slightly thickened in its middle part, while the peak gets thin and trifurcated. From the bottom towards the basis, arranged unilaterally on the sensillus’ axis, 3 relatively long branches — going beyond the trifurcated peak — are present, followed by other 5-7 small, thorn-shaped branches, which decrease towards the basis. On almost 2/3 of its distal part, the axis of the sensillus evidences some small thorns. The rostral setae are long, slightly curved and unilaterally barbed. The lamellar, interlamellar and exobothrial setae, of almost equal sizes, are finely barbed along their whole length (Table 2).

The notogaster has the width/length ratio ranging between 85-88%. With the exception of the row of muscular impressions, this shield has no ornamentations. Lyrifissures ia, im and ip are small. The $c_2$ setae — which are visible — are smooth, their length being half of the other notogastral setae. The latter ones, occurring as 12 pairs, are relatively short, representing 8.8-9.5% of the notogaster’s length (Table 2). They are thin and finely barbed along their whole length, their distribution being characteristic for the Multioppia subgenus. The da, la and lm setae are placed in front of lyrifissure im, the lm setae being lined to the centro-dorsal ones. The other setae are to be found behind lyrifissure im.

*Epimeral region.* The whole surface of the epimeres is decorated with a fine granulation, some irregular polygons being visible on the border of epimeres 4. The median setae (a) are short, thin and smooth, while setae b are longer, and again thin and smooth. Setae 3c and 4c are long, thin and finely barbed.

*Genitoanal region.* The genital aperture is small, ovaly elongated, with a narrow thickened ring, which surrounds it on the whole. The genital valves have, each, 5 short, smooth setae. The aggenital setae are thin and finely barbed along their whole length. The anal aperture, large and ovaly elongated, is surrounded by a narrow ring. The anal setae are small and barbed. In posterior position to the anal ring there occurs a transverse thickening, at the margins of
which setae \(ad_1\) originate. The anal setae are relatively short, fine and densely barbed. Lyrifissure \(iad\) is small, being placed in paraanal position.

**Remarks.** \(M. (M.)\) callatisiana belongs to the same group as \(M. (M.)\) furcata, furcata carpatica, glabra and orghidani, although it differs from them in the shape of the sensillus (Fig. 18), the aspect of the setae in and le, the presence of seta \(c_2\), the short notogastral setae, as well as in the granular ornamentation of the epimeres’ surface.

**Derivatio nominis.** The name given to the new species comes from the old name — Callatis — of the actual Mangalia, the area from which the type material comes.

**Discussion**

The comparative morphological analysis and, especially, the distribution of the notogastral setae permit the conclusion that the 2 subgenera seem to reflect two distinct evolution stages.

In the case of the Multioppia subgenus, development of the setal fields is more advanced, especially in the notogaster’s anterior half, so that the distance between setae \(da\) and \(dm\) increases, while setae \(lm\) tend to be interposed between them.

Within the Hammeroppia subgenus, the development of the setal fields is more reduced, while the lateral and centro-dorsal setae have a meridian orientation — the same as in the preadult stages — representing, in our opinion, the ancestral distribution form.

**Acknowledgements**

The authors are grateful to Dr. Decu, Dr. V. Iavorschi and their working group from Institute of Speleology in Bucharest who have collected the interesting material from Movile Cave (Constanta county). We also thank to L. Fabian from Biological Research Institute of Cluj for the material proceeding from the West part of country, put at our disposal.

**REFERENCES**


