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**A review of the monophyly and composition of the Bengaliinae
with the description of a new genus and species, and new evidence
for the presence of Melanomyiinae in the Afrotropical Region
(Diptera, Calliphoridae)**

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Table of contents

Abstract	3
Introduction	4
Material and methods	4
Material examined	4
Acronyms for collections	4
Condition of <i>Mafikengia ciliata</i> specimen	5
Uterine larvae of <i>Ochromelinda thoracica</i> Villeneuve	5
Abbreviations used in text for setae and abdominal sclerites	5
Abbreviations used on figures of genitalia and external adult features	6
Abbreviations used on figures of first instar larva of <i>Ochromelinda thoracica</i>	6
Photography	6
Phylogenetic analysis	7
Family Calliphoridae Brauer & Bergenstamm, 1889	7
Subfamily Bengaliinae Brauer & Bergenstamm, 1889	7
Diagnosis	8
Generic composition	8
Genus <i>Mafikengia</i> gen. nov.	8
Etymology	8
Diagnosis	8
Distribution	8
<i>Mafikengia ciliata</i> sp. nov.	9
Etymology	9
Diagnosis	9
Description	9
Biology	16
Type material	16
Monophyly and diagnosis of the Bengaliinae	16
Hough's postsutural seta and the Y seta	19
Cerci, surstyli and bacilliform sclerites complex	19
(a) – among genera of the Bengaliinae	19
(b) – among calliphorid and other groups outside the Bengaliinae	28
(c) – conclusion: raise the rank of Bengaliinae to a family?	31
Key to world Bengaliinae	32
Phylogenetic relationship of the genera of Bengaliinae	33
Biology of the Bengaliinae	35
Systematic position of the Afrotropical genera <i>Adichosina</i> Villeneuve, <i>Ochromelinda</i> Villeneuve, <i>Onesihoplisa</i> Villeneuve and <i>Zernyiella</i> Zumpt in the subfamily Melanomyiinae	36
Acknowledgements	42
References	42
Appendix 1. Characters and character states used for the phylogenetic analysis and data matrix	48
Appendix 2. Check-list of genus-group and species-group names included in Bengaliinae	53
Appendix 3. List of material examined	56
Appendix 4. Description of uterine larvae of <i>Ochromelinda thoracica</i> Villeneuve by Krzysztof Szpila	59

Abstract

Mafikengia ciliata **gen. nov.**, **sp. nov.** is described from South Africa and assigned to the subfamily Bengaliinae of the Calliphoridae. It is recognisable by its small size (4 mm), mostly yellow body, and a number of peculiar characteristics. The upper end of the bacilliform sclerite is attached to the medial side of the posterior portion of the surstylus on each side, a very unusual feature among calliphorids. This medial connection in *Mafikengia* is found in all genera of Bengaliinae, but is not present in any other calliphorid subfamily. The monophyly of the Bengaliinae is discussed, the subfamily is diagnosed, the component genera are listed, and a key to the world Bengaliinae is presented. The Bengaliinae are a very well circumscribed group within the Oestroidea, and it is suggested that the status of the subfamily might be raised to the rank of family. A cladistic analysis using NONA shows that *Mafikengia* is more closely related to the Oriental genus *Termitoloemus* Baranov, 1936 than to any other genus, and that the tribes Auchmeromyiini and Bengaliini may still be upheld

as separate monophyletic groups, but with very low support. The Afrotropical nominal genus *Neocordylobia* Villeneuve, 1929 is reduced to a synonym of *Cordylobia* Grünberg, 1903, **syn. nov.** The nominal species *Neocordylobia tauffliebi* Zumpt, 1958 is transferred to the genus *Tricyclea* Wulp, 1885, as *Tricyclea tauffliebi* (Zumpt), **comb. nov.** A new interpretation of the male genitalia of *Termitoloemus marshalli* Baranov is presented. The male genitalia of the Afrotropical species *Tricycleala maculipennis* Villeneuve as well as the male and female genitalia of the Afrotropical genera *Adichosina* Villeneuve, *Ochromelinda* Villeneuve and *Onesihoplisa* Villeneuve are figured. The uterine first instar larva of the female of *Ochromelinda thoracica* Villeneuve is described and illustrated. The genera *Adichosina*, *Ochromelinda*, *Onesihoplisa* and *Zernyiella* Zumpt are assigned to the calliphorid subfamily Melanomyinae on the basis of the morphology of the female ovipositor, male aedeagus and first instar larva. The occurrence of this subfamily in the Afrotropical Region is established for the first time. A lectotype is designated for *Zernyiella dubia* Zumpt, 1956 to fix the interpretation of the name. *Auchmeromyia kurahashi* Lehrer, 2005 is established as a junior synonym of *Auchmeromyia senegalensis* Macquart, 1851, **syn. nov.** *Auchmeromyia pattoniella* Lehrer, 2005 is an unavailable name [no type designation] in the synonymy of *Auchmeromyia bequaerti* Roubaud, 1913. *Cordylobia ebadiana* Lehrer & Goergen, 2006 is established as a junior synonym of *Cordylobia rodhaini* Gedoelst, 1910, **syn. nov.** *Pachychoeromyia kanemia* Lehrer, 2011 is reduced to a synonym of *Pachychoeromyia praegrans* Austen, 1910, **syn. nov.** The family-group name Coganomyinae of Peris & González-Mora, 2004 is established as a synonym of Bengaliinae Brauer & Bergenstamm, 1889, **syn. nov.**

Key words: Diptera, Calliphoridae, Bengaliinae, Melanomyinae, new genus, new species, genitalia, phylogeny

Introduction

In July 2007 Thomas Pape of the Zoological Museum of Copenhagen sent me a specimen of a small yellow bengaliine fly that one of his students had captured on the “chimney” of a termite nest (*Odontotermes* sp.) in South Africa. It had a number of peculiar characteristics and he suggested it belonged to a new species. He kindly left it to me to describe it. After close study I found it justified to assign the material to a new genus. Certain discoveries subsequently led me to widen the scope of the investigation to a full-scale review of the monophyly and composition of the Bengaliinae. The purpose of the present paper is thus

- (1) to describe and diagnose the new genus and species;
- (2) to diagnose and confirm the monophyly of the subfamily Bengaliinae;
- (3) to describe the distribution among bengaliine genera of two setae with fixed position known only among the Bengaliinae: Hough's postsutural seta and the Y seta;
- (4) to describe the cerci, the surstyli and the connection between the surstylus and the upper end of the bacilliform sclerite in representatives of all genera of the Bengaliinae, and in all subfamilies of the Calliphoridae;
- (5) to present a key to the World genera of Bengaliinae;
- (6) to list and analyse the phylogenetic relationships of the genera making up the subfamily Bengaliinae;
- (7) to list all family-group and genus-group names associated with Bengaliinae;
- (8) to summarise briefly what is known about the biology of the Bengaliinae; and
- (9) to discuss the systematic position of the genera *Adichosina* Villeneuve, 1934, *Ochromelinda* Villeneuve, 1915, *Onesihoplisa* Villeneuve, 1926 and *Zernyiella* Zumpt, 1956.

Material and methods

Material examined. Material and depositories are listed in Appendix 3. Author of the names of the examined species can also be found there.

Acronyms for collections.

BMNH Natural History Museum, London, UK

BMSA Department of Entomology, National Museum, Bloemfontein, South Africa

BPBM Bishop Museum, Honolulu, Hawaii, USA

CNC Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, Canada

KR Private collection of Knut Rognes