

vus d'une telle plage: «thigmomère»; et, pour l'ensemble de ces articles: «thigmus» (continu, sinon discontinu ou disjoint). S'il est des cas où cette terminologie se heurte à des difficultés d'application, je suggère que les chercheurs intéressés la complètent ou l'affinent.

Chez les Hyménoptères Ceraphronoidea, les femelles possèdent un thigmus s'étendant sur les quelques derniers flagellomères, dont la plus grande surface est couverte de sensilla trichoidea nombreux, parsemés de «soies spiniformes» (sensilla basiconica), nettement moins nombreuses, tandis que le thigmochoire est ventral (Figs 1-4). Très souvent, celui-ci est constitué de trois séries longitudinales (une médiane et deux latérales) de sensilla basiconica plus petits et de forme différente de celle des précités (Figs 1-3). Chez *Dendrocerus carpenteri* (CURTIS, 1829) par exemple (Megaspilidae), ils sont tronqués à l'apex (Fig. 5) et le thigmus comprend les 6 flagellomères distaux; chez deux espèces de *Cyoceraphron* (dont une à décrire: cfr DESSART, 1994) (Ceraphronidae), ils sont munis d'une sorte de bec apical (Fig. 6) et le thigmus est limité aux 3 ou 4 articles distaux. Les séries de sensilla spéciaux s'étendent en principe sur toute la longueur du thigmomère; parfois, cependant, le premier thigmochoire est limité à la portion apicale de l'article antennaire. En outre, les thigmomères sont munis (très généralement sinon toujours) d'une échancrure ventrale médio-basale, absente des flagellomères précédents (Figs 1-4). Dans d'autres cas, les thigmochoires sont constitués d'une plage très dense en sensilla (Fig. 4).

À ma connaissance, la première mention du thigmus, chez les Ceraphronoidea, remonte à la description d'*Aphanogmus steinitzi* PRIESNER, 1936: malheureusement, l'auteur a interprété et figuré cette structure comme une carène («Kiel») sur les trois derniers flagellomères (Fig. 7)...

Références

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Phylogenetic relationships within the Cephalopsini (Diptera, Pipunculidae)

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Abstract

The phylogeny within the tribe Cephalopsini is discussed, based on a cladistic analysis of earlier recognized character states within (sub)groups and genera, and using the computer program Hennig86 for constructing cladograms. Within the genus Cephalosphaera ENDERLEIN, two subgenera are recognized: Cephalosphaera s.s. and Neocephalosphaera subgen. nov.. Within the genus Cephalops FALLÉN, four subgenera are recognized: Cephalops s.s., Semicephalops subgen. nov., Parabeckerias subgen. nov., and Beckerias ACZÉL (previously recognized as separate genus). Their diagnostic features and interrelationships are discussed.

Introduction

Recently, DE MEYER (1989c) revised the genus group *Cephalops* (including the genera *Cephalosphaera* ENDERLEIN, *Cephalops* FALLÉN, *Beckerias* ACZÉL, and *Wittella* HARDY), later grouped as the tribe Cephalopsini by RAFAEL & DE MEYER (1992). Within the Cephalopsini, three higher taxa were recognized: *Cephalosphaera*, *Cephalops*, and *Beckerias*, while *Wittella* was considered a synonym of *Cephalops* (RAFAEL & DE MEYER, 1992).

The findings of this revision were published in a series of separate articles (DE MEYER, 1989a,b, 1990, 1992a,b, 1993; DE MEYER & GROOTAERT 1990, 1992). In these articles, reference was made to a number of monophyletic groups which could be recognized within these genera. For the genus *Cephalops*, the so-called *aeneus* group, *semifumosus* group and *obtusinervis* group were differentiated (see DE MEYER 1989a,b, 1992b; DE MEYER & GROOTAERT 1990, 1992). The *vestitus* group was earlier recognized as a separate genus *Microcephalops* and placed together with *Collinias* in a separate tribe (Microcephalopsini) in order to ensure the monophyly

of the Cephalopsini (see DE MEYER, 1989b, RAFAEL & DE MEYER, 1992). Within the *semifumosus* group, three subgroups were recognized: the *semifumosus*, *hawaiiensis*, and *visendus* subgroups (see DE MEYER 1992b, 1993). For *Cephalosphaera*, mention was made of two groups, but no provisional names were given (see DE MEYER, 1989b; DE MEYER & GROOTAERT, 1990).

In this article, the phylogenetic relationships between these species groups are analysed and some of them given subgeneric status. The phylogeny is based on a cladistic analysis of a data matrix on 16 characters, and by using HENNIG86 program for calculating and analyzing the trees. The present known species are placed in the recognized (sub)genera and subgroups for which it is possible.

Classification of Cephalopsini

Genus *Cephalosphaera* ENDERLEIN

Cephalosphaera ENDERLEIN, 1936: 129. Type species: *Pipunculus furcatus* EGGER, 1860, by original designation.

Strandimyza DUDA, 1940: 216. Type species: *Pipunculus furcatus* EGGER, 1860, by original designation.

Anacephalops ACZÉL, 1940: 151. Type species: *Pipunculus amboinalis* WALKER, 1860, by original designation.

As outlined in RAFAEL & DE MEYER (1992), the taxon *Cephalosphaera* is considered as a separate genus from *Cephalops*, though no synapomorphic characters have so far been found. The polarity of the character on appendix in vein M1+2 is still partly unresolved. Within *Cephalosphaera*, most species can be placed in two distinct groups. This subdivision is based on the absence or presence of characters 4-6. The following subgeneric division is proposed.

Subgenus *Cephalosphaera* ENDERLEIN s.s.

Cephalosphaera ENDERLEIN, 1936

Strandimyza DUDA, 1940

Diagnosis: In all species the mid tibia bears a tuft of longer hairs apically. Most, but not all, species also have short ejaculatory ductuli. The membranous area on the male abdominal sternum 8 does not reach the epandrium or tergum 5 and is often strongly reduced in size. The following species can be placed in this subgenus:

acuminata CRESSON, 1911 (Nearctic)
appendiculata CRESSON, 1911 (Nearctic)
 = *eronis* CURRAN, 1927
fairchildi RAFAEL, 1992 (Neotropical)
furcata EGGER, 1860 (Palaeartic)
germanica ACZÉL, 1940 (Palaeartic)

gymne DE MEYER & GROOTAERT, 1990 (Australian)
hirashimai MORAKOTE, 1990 (Palaeartic)
incomitata HARDY, 1965 (Neotropical)
inuitata HARDY, 1972 (Oriental)
macroctenia RAFAEL, 1992 (Neotropical)
magnispinosa HARDY, 1950 (Afrotropical)
pacaraima RAFAEL & ROSA, 1991 (Neotropical)
reducta DE MEYER, 1989 (Nearctic)
sapporoensis MORAKOTE, 1990 (Palaeartic)
tingens HARDY, 1972 (Oriental)
xanthosternum HARDY, 1968 (Australian)

Subgenus *Neocephalosphaera* Subg. nov.

Type species: *Pipunculus brevis* CRESSON, 1911.

Diagnosis: All species have a large membranous area reaching the epandrium in the male (this character does not seem to be homologous to the key-hole shaped membranous area found in some *Cephalops*; see below). In most species (except *C. patula* and *C. vietnamensis*) the membranous area also reaches towards the 5th abdominal tergum, splitting the 8th sternum in two halves. The following species can be placed in this subgenus:

aequatorialis BECKER, 1919 (Neotropical)
arnaudi RAFAEL, 1992 (Neotropical)
biscaynei CRESSON, 1912 (Nearctic)
boutropis HARDY, 1965 (Neotropical)
brevis CRESSON, 1911 (Nearctic)
collarti HARDY, 1952 (Afrotropical)
cristata RAFAEL, 1992 (Neotropical)
filicera DE MEYER, 1989 (Nearctic)
jamaicensis JOHNSON, 1919 (Neotropical)
maxima HARDY, 1943 (Nearctic)
miriamae RAFAEL, 1992 (Neotropical)
mocaensis HARDY, 1948 (Neotropical)
pallidifemoralis HARDY, 1952 (Afrotropical)
patula HARDY, 1972 (Oriental)
santiagoensis RAFAEL, 1992 (Neotropical)
semispinalis RAFAEL & ROSA, 1991 (Neotropical)
sylvana BRUNETTI, 1927 (Oriental)
vietnamensis HARDY, 1972 (Oriental)
wauensis DE MEYER & GROOTAERT, 1990 (Australian)

A number of *Cephalosphaera* s.l. species cannot be placed in any of the two subgenera, either because the male sex is unknown (hence certain characters cannot be studied) or the original description is inadequate and material could not be studied in detail. These species are listed below. This is also the case for *amboinalis* (WALKER) which is only known from the female holotype. ACZÉL (1940) designated this species as type species for the

genus *Anacephalops* which was solely characterized by the colorless pterostigma. A character that later proved to be erroneous since a distinct pterostigma is present in the holotype, hence placing the species within the genus *Cephalosphaera*. Since no males are known, it is however not clear to which subgenus the species belongs.

amboinalis WALKER, 1860 (Australian)
hikosanus MORAKOTE, 1990 (Palaeartic)
honshuensis MORAKOTE, 1990 (Palaeartic)
immodica DE MEYER & GROOTAERT, 1990 (Australian)
kasparjani KUZNETZOV, 1990 (Palaeartic)
motichoorensis KAPOOR, GREWAL & SHARMA, 1987 (Oriental)
prolata KERTÉSZ, 1915 (Oriental)
 = *appendiculata* BRUNETTI, 1912
redunca HARDY, 1972 (Oriental)

Genus *Cephalops* FALLÉN

Cephalops FALLÉN, 1810: 10. Type species: *Cephalops aeneus* FALLÉN, 1810, by monotypy.

Wittella HARDY, 1950: 41. Type species: *Dorilas candidulus* HARDY, 1949, by original designation.

Within the genus *Cephalops*, it is proposed to give the three main species groups previously recognized as *aeneus*, *semifumosus*, and *obtusinervis* groups subgeneric status, hereafter respectively named *Cephalops* s.s., *Semicephalops* subgen. nov., and *Parabeckerias* subgen. nov., thus resulting in the following division.

Subgenus *Cephalops* FALLÉN s.s.

Cephalops FALLÉN, 1810
Wittella HARDY, 1950

Diagnosis: This subgenus was formerly indicated as the *aeneus* group in DE MEYER (1989a, 1989b, 1992a, 1992b) and DE MEYER & GROOTAERT (1990, 1992). The subgenus *Cephalops* is mainly recognized by the presence of one or more erected spines on the median part anteriorly on the hind tibia and the distinct apical spines on mid and front tibiae. Also most species have a reduction of the number of ejaculatory ductuli to two (often covered with small teeth) or even one membranous structure (as in the *kalimus* species set, cfr. DE MEYER, 1992a). In addition, a number of characters are found in most but not all species, such as the ejaculatory apodema is tubiform, and cross-vein r-m placed at basal third of discal cell or even more basally. A number of species sets were recognized which included a limited number of species (for example the *kalimus* and *obtusus* sets, cfr. DE MEYER, 1992a). These sets are however not differentiated here since they are still provisional. The subgenus as a whole includes the following species:

abditus HARDY, 1949 (Afrotropical)
adamanteus DE MEYER & KOZÁNEK, 1990 (Palaeartic)
aeneus FALLÉN, 1810 (Palaeartic)
 = *pratorum* FALLÉN, 1816
 = *flavipes* MEIGEN, 1824
 = *braueri* STROBL, 1880
albivillosus HARDY, 1949 (Afrotropical)
amapaensis RAFAEL, 1991 (Neotropical)
amembranosus RAFAEL, 1991 (Neotropical)
bequaerti CURRAN, 1929 (Afrotropical)
boharti HARDY, 1949 (Palaeartic)
brasiliensis HARDY, 1950 (Neotropical)
burmensis DE MEYER, 1992 (Oriental)
caeruleimontanus DE MEYER & GROOTAERT, 1992 (Australian)
calcaratus HARDY, 1949 (Afrotropical)
callistus HARDY, 1954 (Neotropical)
calva DE MEYER, 1990 (Afrotropical)
candidulus HARDY, 1949 (Afrotropical)
cochleatus DE MEYER & GROOTAERT, 1992 (Australian)
congoensis HARDY, 1949 (Afrotropical)
conjunctivus COLLIN, 1958 (Palaeartic)
deminutens HARDY, 1966 (Oriental)
eximius HARDY, 1972 (Oriental)
flaviventris DE MEYER & GROOTAERT, 1992 (Australian)
furnaceus DE MEYER, 1989 (Nearctic)
grootaerti DE MEYER, 1989 (Nearctic)
huashanensis YANG & XU, 1989 (Palaeartic)
inflatus DE MEYER, 1992 (Afrotropical)
innitidus RAFAEL, 1991 (Neotropical)
javensis DE MEYER, 1992 (Oriental)
kalimus HARDY, 1962 (Afrotropical)
kurilensis KUZNETZOV, 1990 (Palaeartic)
laeviventris LOEW, 1858 (Afrotropical)
limatus HARDY, 1965 (Neotropical)
longipennis BRUNETTI, 1927 (Oriental)
longistylis DE MEYER, 1989 (Nearctic)
lubuti CURRAN, 1929 (Afrotropical)
lusingensis HARDY, 1952 (Afrotropical)
maculiventris BRUNETTI, 1927 (Oriental)
multidenticulatus DE MEYER & GROOTAERT, 1990 (Australian)
mundulus HARDY, 1968 (Oriental)
nagatomii HARDY, 1972 (Oriental)
nigricoxa RAFAEL, 1991 (Neotropical)
nigrifrons RAFAEL, 1991 (Neotropical)
nitidellus RAFAEL, 1991 (Neotropical)
nitidus HARDY, 1950 (Neotropical)
obtusus HARDY, 1949 (Afrotropical)
 = *reconditus* HARDY, 1949

pacatus MORAKOTE, 1990 (Palaeartic)
pallidipleura CURRAN, 1929 (Afrotropical)
pallidivittipes DE MEYER, 1989 (Nearctic)
pendleburyi BRUNETTI, 1927 (Oriental)
perpaucus HARDY, 1950 (Afrotropical)
philippinensis HARDY, 1949 (Oriental)
ponti RAFAEL, 1991 (Neotropical)
pulvillatus KERTÉSZ, 1915 (Oriental, Palaeartic)
quasilubuti HARDY, 1962 (Afrotropical)
robustus DE MEYER & GROOTAERT, 1992 (Australian)
tibetanus YANG & XU, 1987 (Palaeartic)
validus HARDY, 1972 (Oriental)
villifemoralis HARDY, 1954 (Neotropical)
villosiscutum HARDY, 1962 (Afrotropical)
vinnulus HARDY, 1949 (Afrotropical)
vittipes ZETTERSTEDT, 1844 (Palaeartic)
zululandicus HARDY, 1949 (Afrotropical)

Subgenus *Semicephalops* Subgen.nov.

Type species: *Pipunculus semifumosus* KOWARZ, 1887

Diagnosis: This subgenus was formerly indicated as the *semifumosus* group in DE MEYER (1989a, 1989b, 1992a DE MEYER & GROOTAERT (1990) The main common character for this subgenus is the key hole shaped membranous area reaching the epandrium. In some of the more apomorphic species however, the membranous area has known a further reduction (see DE MEYER, 1992b, 1993).

This subgenus can still be divided into three subgroups as mentioned above: *semifumosus* subgroup, *hawaiiensis* subgroup and the *visendus* subgroup. These subgroups have not been given any taxonomic status in this analysis. The species belonging to *Semicephalops* are however ordered below, according to the subgroup they belong to.

The *semifumosus* subgroup

The phylogenetic relationship within this subgroup is largely unresolved, except perhaps for some of the Holarctic species (DE MEYER, 1989b). The common denominator of the subgroup is the asymmetrically pointed tip of the aedeagus. Further study could however show this character to be unreliable, hence the following provisional list.

acklandi KOZÁNEK & DE MEYER, 1992 (Palaeartic)
ariadneae DE MEYER & GROOTAERT, 1992 (Australian)
bellulus HARDY, 1949 (Afrotropical)
bifidus DE MEYER & GROOTAERT, 1990 (Australian)
carinatus VERRALL, 1901 (Palaeartic)
cautus HARDY, 1952 (Afrotropical)
chlorionae FREY, 1945 (Palaeartic)

curvarmatus DE MEYER, 1989 (Nearctic)
digitatus DE MEYER, 1989 (Nearctic)
emelfjanovi KUZNETZOV, 1991 (Palaeartic)
eufraternus KAPOOR, GREWAL & SHARMA, 1987 (Oriental)
extimus HARDY, 1952 (Afrotropical)
fraternus KERTÉSZ, 1912 (Oriental, Australian)
grandimembranus DE MEYER, 1989 (Palaeartic)
hadyi DE MEYER, 1989 (Nearctic)
libidinosus DE MEYER, 1991 (Australian)
longiductulis DE MEYER, 1989 (Nearctic)
longisetosus HARDY, 1950 (Afrotropical)
lucidus HARDY, 1950 (Afrotropical)
mainensis CRESSON, 1911 (Nearctic)
 = *trichaetus* MALLOCH, 1913
navus HARDY, 1952 (Afrotropical)
orestes HARDY, 1972 (Oriental)
paganus HARDY, 1965 (Neotropical)
palawanensis HARDY, 1972 (Oriental)
pallipes JOHNSON, 1903 (Nearctic)
papuaensis DE MEYER & GROOTAERT, 1990 (Australian)
pauculus HARDY, 1954 (Neotropical)
penepauculus HARDY, 1965 (Neotropical)
penultimus ACKLAND, 1993 (Palaeartic)
perspicuus DE MEYER, 1907 (Palaeartic)
 = *flavonotatus* KERTÉSZ, 1915
 = *flavomaculatus* STROBL, 1910
 = *subflavus* BECKER, 1921
phaethus HARDY & KNOWLTON, 1939 (Nearctic)
ruandensis HARDY, 1950 (Afrotropical)
saegeri HARDY, 1961 (Afrotropical)
semifumosus KOWARZ, 1887 (Afrotropical)
 = *strobli* VERRALL, 1901
 = *strigulipes* VERRALL, 1901
shikotanicus KUZNETZOV, 1990 (Palaeartic)
signatus BECKER, 1900 (Palaeartic)
 = *oberon* COE, 1966
 = *titania* COE, 1966
stygius HARDY, 1948 (Neotropical)
subultimus COLLIN, 1956 (Palaeartic)
terraereginaensis DE MEYER & GROOTAERT, 1992 (Australian)
ugandensis DE MEYER, 1992 (Afrotropical)
ultimus BECKER, 1900 (Palaeartic)
varius CRESSON, 1911 (Nearctic)
xanthocnemis PERKINS, 1905 (Australian)

hawaiiensis subgroup

This subgroup is confined to the Hawaiian islands and contains 36 species.

It was differentiated as a distinct subgroup within the *semifumosus* group in DE MEYER (1993). It forms a distinct monophyletic cluster based on the presence of a large fan shaped ejaculatory apodema in the male genital structure. See DE MEYER, 1993 for a list of all species belonging to this subgroup. All Pipunculidae occurring on the Hawaiian islands belong to this subgroup.

visendus subgroup

This subgroup was already differentiated as such in DE MEYER (1992a, 1992b) and DE MEYER & GROOTAERT (1990) within the *semifumosus* group. It only contains 4 species. The phylogenetic relationship among these was discussed in detail in DE MEYER, 1992b.

inpaganus RAFAEL, 1991 (Neotropical)
magnimembrus DE MEYER, 1992 (Oriental)
parmatus DE MEYER & GROOTAERT, 1990 (Australian)
visendus HARDY, 1950 (Afrotropical)
 = *mauritanus* HARDY, 1956
 = *intimilobus* HARDY, 1962

Subgenus *Parabeckerias* Subgen. nov.

Type species: *Pipunculus obtusinervis* ZETTERSTEDT, 1844.

Diagnosis: This small subgenus was previously indicated as the *obtusinervis* group in DE MEYER (1989a). It is mainly characterized by the ventral subapical lobe on the surstyli (DE MEYER, 1992b). Only two species are confined to this group. It is closely related to *Beckerias*, with whom it shares the synapomorphies of a broadened apical part of the aedeagus. Following species are included:

obtusinervis ZETTERSTEDT, 1844 (Palaeartic)
taiwanensis DE MEYER, 1992 (Oriental)

Subgenus *Beckerias* ACZÉL

Beckerias ACZÉL, 1939: 192 (as genus). Type species: *Beckerias pannonicus* ACZÉL, 1939, by original designation.

Diagnosis: The genus *Beckerias* is considered as a subgenus of *Cephalops*. This new combination is based on the cladistic analysis outlined below. Only four species are known so far within this group. They are mainly characterized by the absence of an anal vein and the bottle shaped ejaculatory apodema.

argutus HARDY, 1968 (Australian, Oriental)
hemistilbus HARDY, 1961 (Afrotropical)
inchoatus HARDY, 1949 (Afrotropical)
pannonicus ACZÉL, 1939 (Palaeartic)

In addition, a number of species within *Cephalops*, could not be placed subgenerically (mainly for similar reasons as in *Cephalosphaera*):

artifrons HARDY, 1968 (Australian)
buclavus HARDY, 1968 (Australian)
chandiensis KAPOOR, GREWAL & SHARMA, 1987 (Oriental)
excellens KERTÉSZ, 1912 (Oriental)
flavocinctus BRUNETTI, 1912 (Oriental)
imparilis HARDY, 1968 (Australian)
incohatu MORAKOTE, 1990 (Palaeartic)
kashmerensis KAPOOR, GREWAL & SHARMA, 1987 (Oriental)
kumaoensis KAPOOR, GREWAL & SHARMA, 1987 (Oriental)
kumatai MORAKOTE, 1990 (Palaeartic)
mashobraensis KAPOOR, GREWAL & SHARMA, 1987 (Oriental)
metallicus MORAKOTE, 1990 (Palaeartic)
nigronitens BRUNETTI, 1912 (Oriental)
seminitidus BECKER, 1898 (Palaeartic)
splendens DE MEYER, 1992 (Afrotropical)
italyshensis KUZNETZOV, 1990 (Palaeartic)
turkmenorum KUZNETZOV, 1990 (Palaeartic)
yoshiyasui MORAKOTE, 1990 (Palaeartic)

Phylogeny of Cephalopsini

DE MEYER (1989b) and RAFAEL & DE MEYER (1992) established the monophyly of the Cephalopsini, and recognized the Pipunculini (including the genera *Pipunculus* LATREILLE and *Parapipunculus* RAFAEL) as the plesiomorphic sistergroup. The monophyly was based on a further reduction of the postabdominal terga in the male (see below, characters 1,2). For analysis of the phylogeny within the Cephalopsini, another 14 characters were used:

1. Male abdominal tergum 6 strongly reduced (1); tergum 6 still present as a distinct segment (0).
2. Male abdominal tergum 7 almost completely reduced; tergum 7 still present as a distinct segment (0).
3. Wing without appendix in vein M1+2 (1); with appendix present (0) (see RAFAEL & DE MEYER, 1992 for discussion of the polarity of this character).
4. Hind tibia with comb of longer hairs apically (1); without longer hairs (0).
5. Male abdominal sternum 8 with membranous area reaching epandrium (1); not reaching epandrium (0).
6. Male abdominal sternum 8 with membranous area (almost) reaching tergum 5 (1); not reaching tergum 5 (0).
7. Tibiae with strong median and apical spines (1); without spines (0).
8. Abdomen broad and shortened (1); abdomen elongated (0).
9. Membranous area on male sternum 8 keyhole shaped (1); membranous area different shape (0).

10. Epandrium large and swollen (1); epandrium smaller (0).
11. Surstyli broadened below in lateral view, strongly curved downwards (1); surstyli of different shape (0).
12. Ejaculatory apodema large fan shaped (1); different shape (0).
13. Apical part aedeagus asymmetrically pointed in ventral view (1); symmetrically pointed (0).
14. Apical part aedeagus strongly broadened (1); not broadened (0).
15. Ejaculatory apodema bottle shaped (1); different shape (0).
16. Anal vein missing (1); present (0).

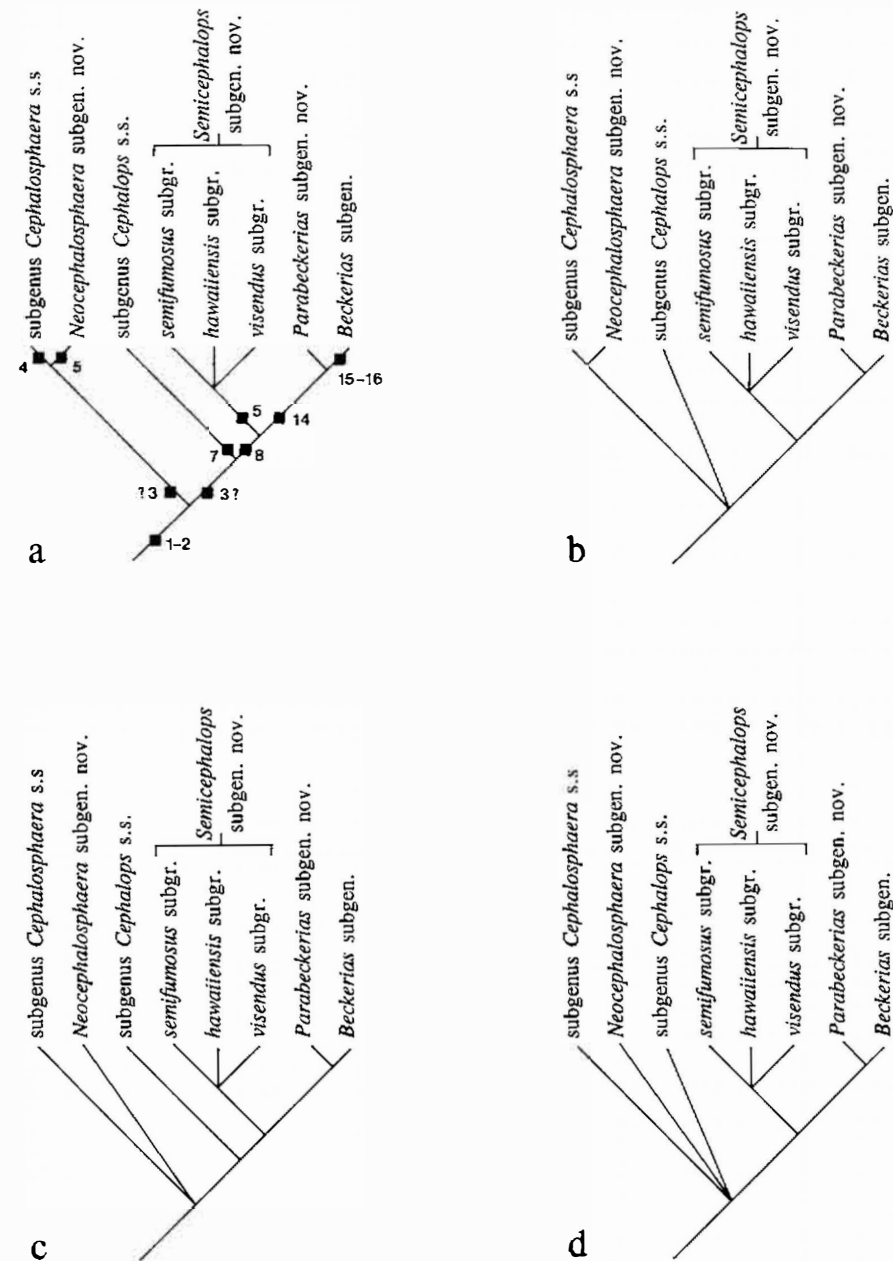
The resulting data matrix (Table 1) was analyzed, using HENNIG86 computer program (FARRIS, 1988). Using the 'ie' (implicit enumeration) option, three trees of equal length were produced (length 17 ci 94 ri 87). All three differ only in the position of the subgenera *Cephalosphaera*, *Neocephalosphaera* and *Cephalops* s.s. (Fig. 1a-c) The consensus tree produced by the 'nelsen' option of HENNIG86 put all these three branches in a polychotomy (Fig. 1d). The 'successive weighting' technique of HENNIG86 does not reduce the number of trees but only give less successive weight to character 3 (appendix of vein M1+2).

Table 1. Data matrix for higher taxa within Cephalopsini (1: apomorphic state; 0: plesiomorphic state; ?: both states present or unknown).

Ancestor	00?0000000000000
subgenus <i>Cephalosphaera</i> s.s.	11010000000000000
<i>Neocephalosphaera</i> subgen.n.	11001100000000000
subgenus <i>Cephalops</i> s.s.	11100010000000000
<i>semifumosus</i> subgroup	11101001100010000
<i>hawaiiensis</i> subgroup	11101001??0100000
<i>visendus</i> subgroup	11101001?11000000
<i>Parabeckerias</i> subgen.n.	11100001000001000
subgenus <i>Beckerias</i>	11100001000001111

The above mentioned (sub)generic division is based on this analysis. The taxa *Semicephalops* subgen. nov., *Parabeckerias* subgen. nov., and *Beckerias* are distinct monophyletic groups in all three proposed trees as well as the consensus tree. *Cephalops* s.s. seems to be more closely related to these taxa than to *Cephalosphaera* (though the monophyly of the group is not certain and depends on the polarity of character 3). Because of this, it is proposed to group all four taxa together within *Cephalops* s.l. (as it was earlier recognized by most specialists) and to give them subgeneric status. The three subgroups within *Semicephalops* are always grouped as a polychotomy and it would be premature to give them any taxonomic status. The genus *Cephalosphaera* has already been recognized as such. The two subdivisions within this genus are given subgeneric status. The monophyly of the genus as a whole is however not certain as mentioned above.

Fig. 1a-c: Equally most parsimonious cladograms for Cephalopsini according to HENNIG86 'ie' option; d: 'nelsen' consensus tree for the three cladograms.



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À propos du genre *Cyoceraphron* DESSART, 1975
(Hymenoptera Ceraphronoidea Ceraphronidae)

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Résumé

De nombreux matériaux asiatiques et africains permettent de préciser les caractères des trois espèces déjà connues: *Cyoceraphron besucheti* DESSART, 1975 (Taïwan, Japon, Bornéo: localités nouvelles), *C. africanus* DESSART, 1975 (♂ nov.; Gabon, Guinée: localités nouvelles) et *C. fuscopleuralis* DESSART, 1978, et de décrire quelques taxons nouveaux: *C. radula* (Nigeria, Gabon), *C. variipictus* (Gabon), *C. striatopleuralis* (Taïwan), *C. funicularis* (Zaire), spp. nn. et, à titre hypothétique, 3 taxons peut-être spécifiques mais considérés comme des sous-espèces de *C. fuscopleuralis*, à savoir *C. f. perfuscus*, *C. f. longiscapus* (Afrique) et *C. f. taiwanensis* (Taïwan), subspp. nn., outre la sous-espèce nominative, *C. f. fuscopleuralis*, dorénavant connue également du Nigeria, du Gabon et du Cameroun (localités nouvelles).

Summary

Abundant Asiatic and African materials allow to precise the characters of 3 previously known species: *Cyoceraphron besucheti* DESSART, 1975 (Taiwan, Japan, Borneo: new localities), *C. africanus* DESSART, 1975 (♂ nov.; Gabon, Guinea: new localities) and *C. fuscopleuralis* DESSART, 1978, and to describe some new taxa: *C. radula* (Nigeria, Gabon), *C. variipictus* (Gabon), *C. striatopleuralis* (Taiwan), *C. funicularis* (Zaire), spp. nn. and, hypothetically, 3 taxa, possibly specific but considered subspecies of *C. fuscopleuralis*, namely *C. f. perfuscus*, *C. f. longiscapus* (Africa) and *C. f. taiwanensis* (Taiwan), subspp. nn., beside the nominotypical subspecies *C. f. fuscopleuralis*, henceforth known from Nigeria, Gabon and Cameroon (new localities).