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## A new species of *Colura* (Lejeuneaceae) from the Aberdare Mountains/Kenya

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**Abstract:** The new species *Colura zoophaga* from the Aberdare Mountains in Kenya is described as new. It differs from *C. berghenii* and *C. hedbergiana* in the obtuse apex, which is rounded or only weakly prolonged. *C. zoophaga* also differs from *C. berghenii* in the smooth leaf-cells, from *C. hedbergiana* in the 5-horned perianth keels and from *C. calyptrifolia* in the papillose perianth. A key to the African taxa of Sectio Macroramphus is provided. The ecology of *C. zoophaga* is briefly described.

The genus *Colura* Dum. comprises 61 species and has been revised world-wide by Jovet-Ast (1953, 1954, 1956, 1958, 1967a, 1967b, 1976, 1980). Previously, before 1953, only *Colura digitalis* (Mitten) Steph. and *Colura dusenii* (Steph.) Steph. had been recorded for tropical Africa. Jovet-Ast added *Colura berghenii* Jovet-Ast (1953), *C. tenuicornis* (Evans) Steph. (Jovet-Ast 1953, 1976) and *C. kilimanjarica* Pócs & Jovet-Ast (1980) and Vanden Berghen provided records of *C. calyptrifolia* (Hook.) Dum. Recently a number of new species and records especially for East Africa have been published: *C. hedbergiana* Pócs, *C. saroltae* Pócs and *C. usambarica* E.W. Jones (see Jones & Pócs 1987). Pócs (1990) recorded the tropical American *C. cylindrica* Herzog from Tanzania. The most recent description was *C. hattoriana* Pócs (1993), an epiphyllous plant from the Comores which has been found also in Malawi (Wiggington & Grolle 1996).

However, only one species of *Colura*, *C. tenuicornis* has ever been recorded for Kenya. The plant is growing in the Taita Hills as epiphyllous between 1440 and 1680 m a.s.l. (Pócs 1991). Up to now, no species was known from the high mountain areas such as Mt. Elgon, the Aberdare Mountains and Mt. Kenya. This contrasts sharply to Mt. Kilimanjaro in Tanzania, where five species (*C. saroltae*, *C. usambarica*, *C. kilimanjarica*, *C. berghenii* and *C. hedbergiana*) were found growing as epiphytes on twigs in the Ericaceous belt (Jones & Pócs 1987, Pócs 1991). Additionally *C. tenuicornis* was found as epiphyllous in the montane rainforest of this mountain.

During a field trip to the Aberdare Mountains in November 1998, author could collect specimens of *Colura* on dead and living twigs of *Cliffortia nitidula* near the Fishing lodge at 3000 m a.s.l., which proved to be not identical with the 11 species of *Colura* reported so far from Africa and thus seems to be a hitherto undescribed species,.

***Colura zoophaga*** Eb. Fischer *sp. nov.* - Fig. 1. Differt a *C. berghenii foliis laevibus*, a *C. hedbergiana perianthiis distincte cornutis*, a *C. calyptriifolia perianthiis papillosis et ab omnibus speciebus Sectionis Macroramphus apice foliorum breve prolongato vel rotundato.*

**Type:** Kenya, Aberdare National Park, Eastern part, Ericaceous moorland at Fishing Lodge near Kiandongoro Gate on twigs of *Cliffortia nitidula*, 3000 m a.s.l., Fischer 6342, 11.11.1998 (B holotype).

Plants pale green, stems ca. 3 mm long, 70-90 µm in diameter. Leaves ascending to erect, crowded, (0.7) 0.9-1.1 mm long and 0.4 mm broad, cylindrical prolongation (beak) short or absent, obtuse. Lamina cells isodiametric, 20-30 µm wide, thin-walled, with angular thickenings. Sac 0.4 mm long and 0.2-0.3 mm broad, valve broad ovate, about 40-60 µm wide, with 6-8 median and 16-17 marginal hyaline cells. Amphigastria with equal lobes, each lobe 0.2-0.3 mm long. Gemmae rare, multicellular, discoid.

Monoecious. Perianths 0.8-0.9 mm long, densely papillose, with 5 winged horns. Bracts up to 0.4 mm long. Androecia on lateral branches, each bract with 2 antheridia. Capsule 0.15-0.2 mm in diameter.

**Etymology:** The epithet “zoophaga” was chosen, as it was the first species of *Colura* which could be shown to trap small animals (Protozoa, Nematodes, Tardigrada) in their leaf utricles. A more detailed description of this phenomenon will be described by Barthlott et al.

**Distribution:** Only known from the type locality in the Aberdare Mountains.

*Colura zoophaga* belongs to Sectio *Macroramphus* Jovet-Ast, which includes two species, *C. berghenii* Jovet-Ast and *C. hedbergiana* Pócs, found in the Ericaceous belt at high altitudes. It differs, however, from both taxa in the obtuse apex, which is rounded or only weakly prolonged. A distinct long beak, which is present in both species as well as in *Colura calyptriifolia* is never developed. *C. zoophaga* also differs from *C. berghenii* in the smooth leaf-cells, from *C.*

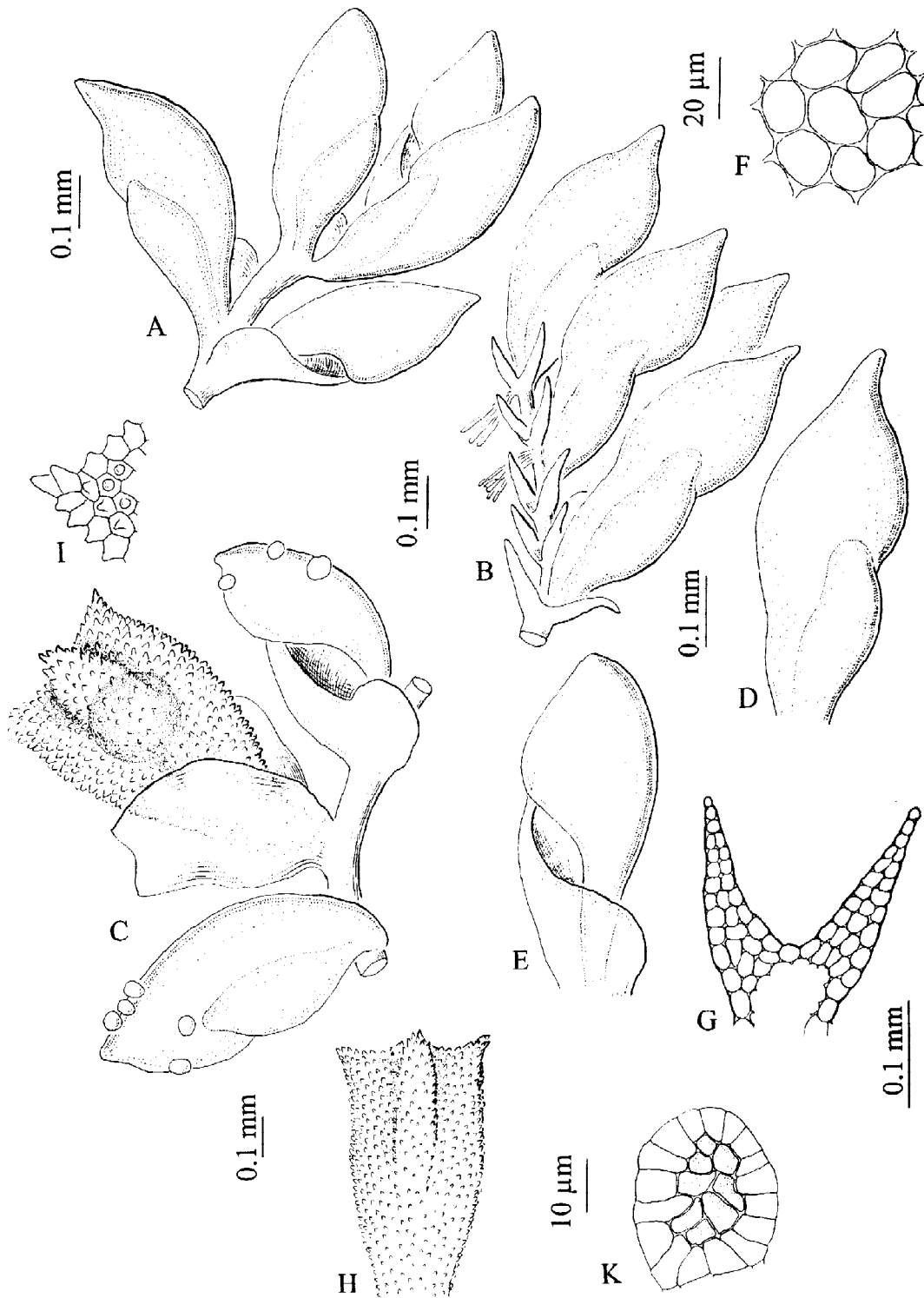
*hedbergiana* in the 5-horned perianth keels and from *C. calyptriifolia* in the papillose perianth. *C. zoophaga*, *C. berghenii* and *C. hedbergiana* may have evolved from a *C. calyptriifolia*-like ancestor in isolated African high mountain ecosystems. It would be worth to look for *Colura* also in the Ericaceous belt of other Central and East African mountains like Ruwenzori, Mt. Elgon or Mt. Kenya.

The following key gives an overview of the African members of Sectio *Macroramphus*.

- 1 Cylindrical prolongation of lobule short or weakly developed or prolongation up to 1/3 or ¼ of total leaf length, perianth with 5 short and winged horns.....2
- 1\* Cylindrical prolongation of lobule nearly half the total leaf length, perianth with 5 long and straight horns.....*C. tenuicornis*
- 2 Leaves with papillose cells, cylindrical prolongation of lobule distinct, perianth papillose ..... *C. berghenii*
- 2\* Leaves with smooth cells, cylindrical prolongation of lobule distinct or indistinct, rounded, perianth papillose or smooth.....3
- 3 Perianth smooth..... *C. calyptriifolia*
- 3\* Perianth papillose.....4
- 4 Cylindrical prolongation of lobule distinct, perianth with 5 wings.....*C. hedbergiana*
- 4\* Cylindrical prolongation of lobule indistinct, short or absent, perianth with 5 horns .....  
.....*C. zoophaga*

#### Distribution and Ecology

*Colura zoophaga* is known only from the Aberdare Mountains, where it grows in the Ericaceous belt at 3000 m a.s.l. Here we find a moorland with scattered *Cliffortia nitidula*-shrubs, which were distinguished as *Cliffortia nitidula-Satureja pseudosimensis* community by Schmitt (1991). These shrublands provide a microclimate, different from the surrounding grassland and usually bear a rich herb and moss layer with e.g. *Rhodobryum keniae* and *Neckera platyantha*. The average rainfall lies at 2049 mm p.a. with an average temperature of 8.9°C (Schmitt 1991). During dry season, these twig



**Fig. 1:** *Colura zoophaga*. A., B. Sterile shoots. C. Shoot with perianth and gemmae. D, E. Leaves. F. Mid-leaf cells. G. Amphigastrium. H. Perianth. I. Perianth cells. K. Valve. All from Fischer 6342.

dry out at day time and are rewetted by fog and clouds during night. The minimum temperatures recorded here are  $-3^{\circ}\text{C}$  at night and the maximum  $25^{\circ}\text{C}$  at day.

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