

***Limnebius kamali* sp. n. from Northern Morocco  
(Coleoptera, Hydraenidae)**

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***Limnebius kamali* sp. n. from Northern Morocco (Coleoptera, Hydraenidae).** - During faunistic survey at different localities in the Rif mountains (Northern Morocco), a new species of the genus *Limnebius* Leach, 1815 was captured which we have named *Limnebius kamali*. In the present paper, the new species is described, illustrated and notes on ecology and distribution are provided. Based on similarities in the aedeagus and the male ventrite VI, *L. kamali* belongs to the *Limnebius truncatellus* (Thunberg, 1794) species group, which so far includes six species occurring in North Africa. The new species is compared with these taxa and distinguished from the closely related *Limnebius pilicauda* Guillebeau, 1896.

**Keywords:** Rif mountains (Morocco) - Taxonomy - Hydraenidae - *Limnebius*.

## INTRODUCTION

Ranging in Northern Morocco, the Rif mountains are a region of great interest for biogeographical studies due to their geological history (Bennas *et al.*, 1992) and their present topography and climatic features (Bennas *et al.*, 2001). Nevertheless, they are inadequately prospected.

During a thorough faunistic survey at different localities in this area, a number of specimens belonging to a new species of the genus *Limnebius* Leach, 1815 were captured. This new species is described herein.

## DESCRIPTION

### ***Limnebius kamali* sp. n.**

TYPE MATERIAL: *Holotype* male (ventrite VI and genitalia on slide), Ruisselet Bou îch, Bou Rhaît 1200 m, UTM 30SUD2278, 35.0156°N 4.9583°W Chefchaouene (Morocco), leg. N. Bennas, 3-VI-1999. *Paratypes*: 2 males, same locality as holotype, leg. N. Bennas, 22-VI-98; 1 male, labelled as holotype. 1 male\*, Oued Ahermar, Timizar, 720 m, UTM 30SUD2278, 35.3039°N 5.3833°W, Tetouan, (Morocco), leg. N. Bennas, 28-VI-1999. 1 male\*, same locality as holotype, leg. N. Bennas, 22-VI-98. All material is kept in alcohol in coll. C.E. Sáinz-Cantero,



Departamento de Biología Animal y Ecología, (Zoología), Facultad de Ciencias, Universidad de Granada, Spain, but 2 paratypes (\*) have been deposited in the Muséum d'histoire naturelle, Genève.

ADDITIONAL MATERIAL: 1 male, Sequia Tissemlal, Tissemlal, 1100 m, UTM 30SUD09, 35.1903°N 5.2383°W, Chefchaouen, (Morocco), leg. N. Bennas, 4-X-2003. 4 males, Oued Kelaa, Akoumi, 400 m, UTM 30SUE00, 35.2408°N 5.1775°W, Chefchaouen, (Morocco), leg. N. Bennas, 21-VI-2003. 1 male, Oued Kanar, Gorge Kanar, 280 m, UTM 30SUE10, 35.2222°N 5.0397°W, Chefchaouen, (Morocco), leg. N. Bennas, 26-VI-2003. (in coll. N. Bennas, Département de Biologie, Faculté des Sciences, Université Abdel Malek Essaadi, Tétouan, Morocco).

ETYMOLOGY: Named after Dr Kamal Targuisti (Université Abdel Malek Essaadi, Tétouan, Maroc) who helped to collect the type series.

DIAGNOSIS: Holotype 1.85 mm long. Body form oblong, broadest near middle third of elytra. Upper surface very convex, black to dark brown, sparsely covered with very fine, adpressed pubescence.

Head black. Labrum moderately densely punctuate, front margin feebly emarginate. Middle of clypeus and fronts smooth, superficially punctuate, sides very superficially or more distinctly shagreened. Antenna light brown to reddish; maxillary palpi reddish with the distal article tip darker.

Middle of pronotum smooth and glabrous, only very faintly punctate; sides of pronotum shagreened.

Elytra elongate; sides only gently rounded; apices truncately rounded; explanate margin narrow; surface evenly shagreened, meshes polygonal; suture not convex.

Legs reddish brown. Protibia (Fig. 1) curved and wider toward the distal end; mesotibia (Fig. 2) curved inwards, which has a series of scattered and long swimming hairs in the internal edge. Metatibia (Fig. 3) slightly curved inwards, the internal edge sinuous and with a dense series of long swimming hairs.

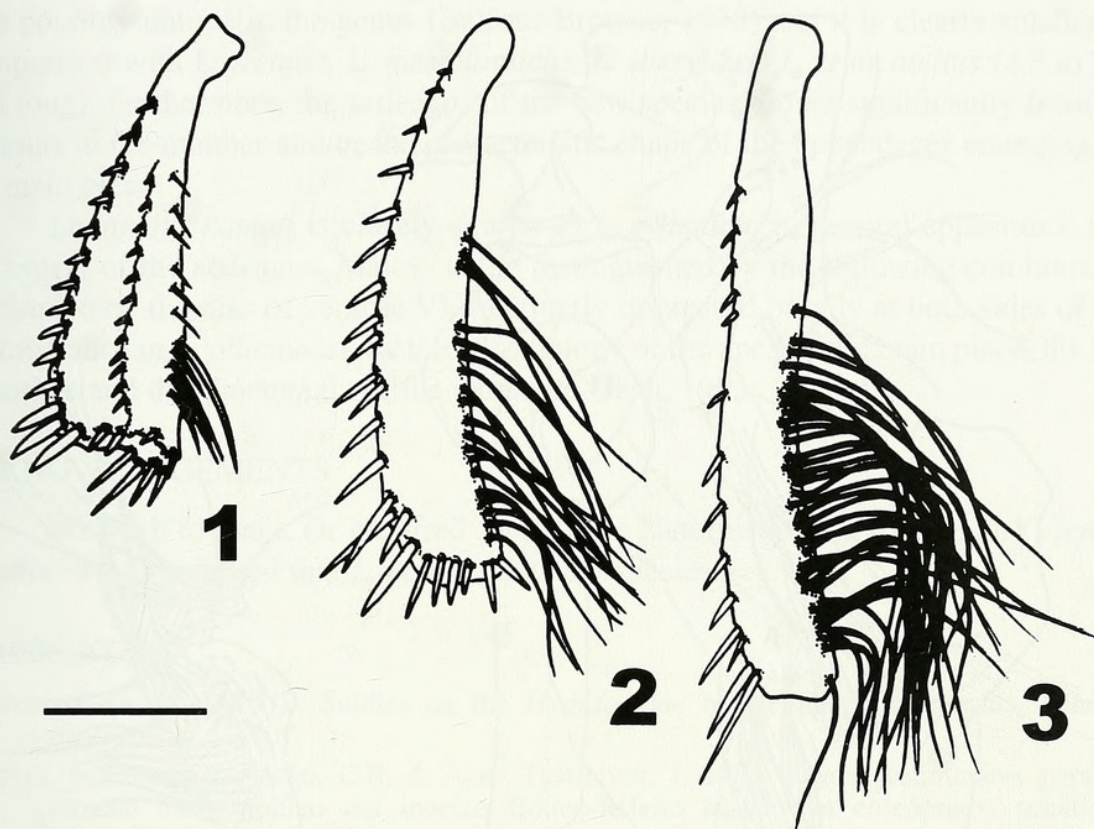
Ventral surface rather black, sparsely covered with fine and short pubescence. Male ventrite VI with an apical and rounded protuberance not distinctly impressed at both sides of basis.

Aedeagus (Figs 4, 5) rather thin, with the ejaculatory duct strongly coiled and the capsule situated near phallobasis. Distal end of main piece (Fig. 4) dorso-ventrally flattened and twisted: the right side forming a pointed beak-shaped lobe, the left side truncate in the apex and with their lateral margin sub-rectilinear, but with a characteristically subdistal protuberance. Four dorsal setae and three ventral setae protrude next the internal edge, beside two ventral groups of long bristles, next to the left paramere. This one is short, with the external edge lean the elbow upon and the distal end lightly sinuous; their internal surface with a tuft of longer and twisted bristles and two types of shorter setae (Fig. 5).

At least three conspicuous appendages ("A", "B" and "C" *sensu* Jäch, 1993) can be recognized in the aedeagus. The appendages "A" and "B", ventrally situated, are strongly sclerotized and curved: the shape of appendage "A" is quite characteristic, pointing right and enlarged apically; the appendage "B" is thin, pointing left and apically hook-like. The appendage "C", dorsally situated, is short, laminate and pointing right.

ECOLOGICAL NOTES: *Limnebius kamali* sp. n. was collected in western streams of the Rif mountains, with gravel and pebbles beds, among semi-submerged mosses.





FIGS 1-3

Male appendages of *Limnebius kamali* sp. n. 1: Protibia. 2: Mesotibia. 3: Metatibia. (Scale bar: 0.10 mm.)

The water of these streams, moderately mineralised (122-428  $\mu\text{S}/\text{cm}$ ), registered temperatures ranging between 11-18°C and a very slow current (0-2.5 cm/s) at the time of the captures.

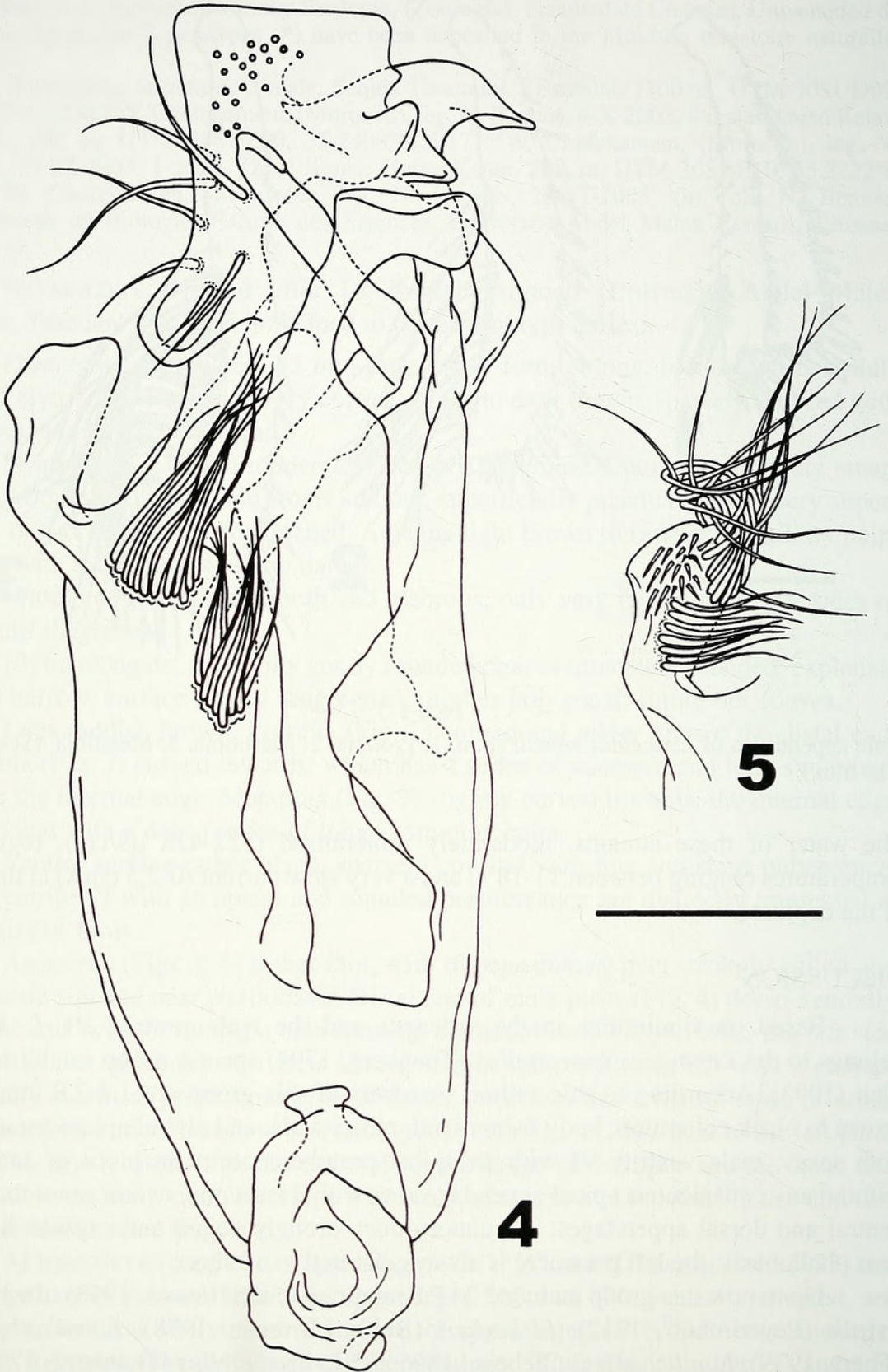
## DISCUSSION

Based on similarities in the aedeagus and the male ventrite VI, *L. kamali* belongs to the *Limnebius truncatellus* (Thunberg, 1794) species group established by Jäch (1993). According to this author, members of this group are 1.4-2.8 mm long, brown to black coloration, body form ovoid, rather wide, and elytral apices truncate in both sexes; male ventrite VI with an apical protuberance; main piece of aedeagus without any conspicuous apical appendages but with a least one, two or more than two ventral and dorsal appendages; ejaculatory duct strongly coiled and capsule situated near phallobasis; the left paramere is always distinctly and short.

Up to now this group included 24 Palearctic species (Hansen, 1998) of which *L. fetalis* (Peyerimhoff, 1912), *L. kocheri* (Balfour-Browne, 1978), *L. mesatlanticus* (Thery, 1939), *L. pilicauda* Guillebeau, 1896 and *L. truncatellus* (Thunberg, 1794) are known from Morocco (Bennas *et al.*, 2001), while *L. theryi* Guillebeau, 1891 is only known from Algeria and Tunisia.

Externally, *L. kamali* can be easily distinguished from *L. kocheri* by the protuberance of ventrite VI, which is very short and acute in both sexes of this species, a





FIGS 4-5

*Limnebius kamali* sp. n. 4: Aedeagus, ventral view (features of left paramere omitted). 5: Left paramere, ventral view. (Scale bar: 0.10 mm.)



trait possibly unique in the genus (Balfour-Browne, 1978) and it is clearly smaller in comparison with *L. fetalis*, *L. mesatlanticus*, *L. theryi* and *L. truncatellus* (2.3 to 2.8 mm long). Furthermore, the aedeagus of the new species differs significantly from all cogenus in the number and/or the characteristic shape of the appendages emerging on the main piece.

*Limnebius kamali* is closely similar to *L. pilicauda* in general appearance and the aspect of the aedeagus. Males can be distinguished by the following combination of characters: the disc of ventrite VI, (distinctly impressed basally at both sides of the protuberance in *L. pilicauda*), by the morphology of the apex of the main piece, the left paramere and the chaetotaxia of the paramere (Jäch, 1993: 170).

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