

***Mabulatrachus iranicus* (Acari: Oribatida: Zetomotrichidae): a new species from Iran**

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Abstract

Mabulatrachus iranicus **sp. nov.** (Acari: Oribatida: Zetomotrichidae) is described from Mazandaran province, Northern Iran.

Key words: Acari, Oribatida, Zetomotrichidae, new species, Iran

Introduction

Currently, the family Zetomotrichidae Grandjean, 1954, is diagnosed by the absence of porose areas or sacculi and the presence of pores on the notogaster, presence of a humeral process (triangular or rounded) together with one or more of the following characters: posterior border of the notogaster separated, forming two overlapping lobes; enlarged, often flattened seta c_2 ; presence of a humeral sac, pyriform organ or humeral pyriform organ; dentation of the anterior rostral border; leg IV a jumping leg (large with 2–4 spine-like setae, acetabulum dorsally displaced); epimeral setae $1a$ (sometimes also $2a$ and $3a$) long, barbed (Coetzee 2003).

The genus *Mabulatrachus* was established by Coetzee (1993) to accommodate the species *M. dentatus* Coetzee, 1993 from South Africa, with the following characters: rostrum anteriorly with deep incisions, laterally with smaller dentations; lamellae absent; large humeral process present; notogastral setae c_2 differentiated from the rest of the notogastral setae; humeral sac present; humeral organ absent; notogastral lyrifissure *im* present; epimeral setal formula 3-1-3-3; epimeral setae $1a$ very long; anogenital setal formula 4-1-1-2; leg IV not a jumping leg; acetabulum III adjacent to acetabulum IV; no enlarged setae on leg IV; notogastral surface smooth with few pores. In the same year, the genus *Hungaromotrichus* was established (Mahunka 1993), which differs from *Mabulatrachus* in having a pyriform organ as well as lyrifissure *im*, and two pairs of both anal and adanal setae. In his catalogue, Subias (2004) synonymized *Mabulatrachus* and *Hungaromotrichus* (without any discussion), but this synonymy is doubtful, due to the presence of a pyriform organ in *Hungaromotrichus*.

The pyriform organ, previously a familial apomorphy, was first described by Grandjean (1934) in his description of *Zetomotrichus lacrimans*. Later he gave more detail and described the structure as a hollow, thick-walled, pear- or tear-shaped organ with no external opening (Grandjean 1954). In *Zetomotrichus*, lyrifissure *im* is absent and Grandjean suggested that the pyriform organ is a transformation of *im*. In *Mikizetes* Hammer, 1958 and *Oglasacarus* Bernini, 1978, a similar structure called a humeral pyriform organ is found in the position of the anterior lyrifissure *ia*.

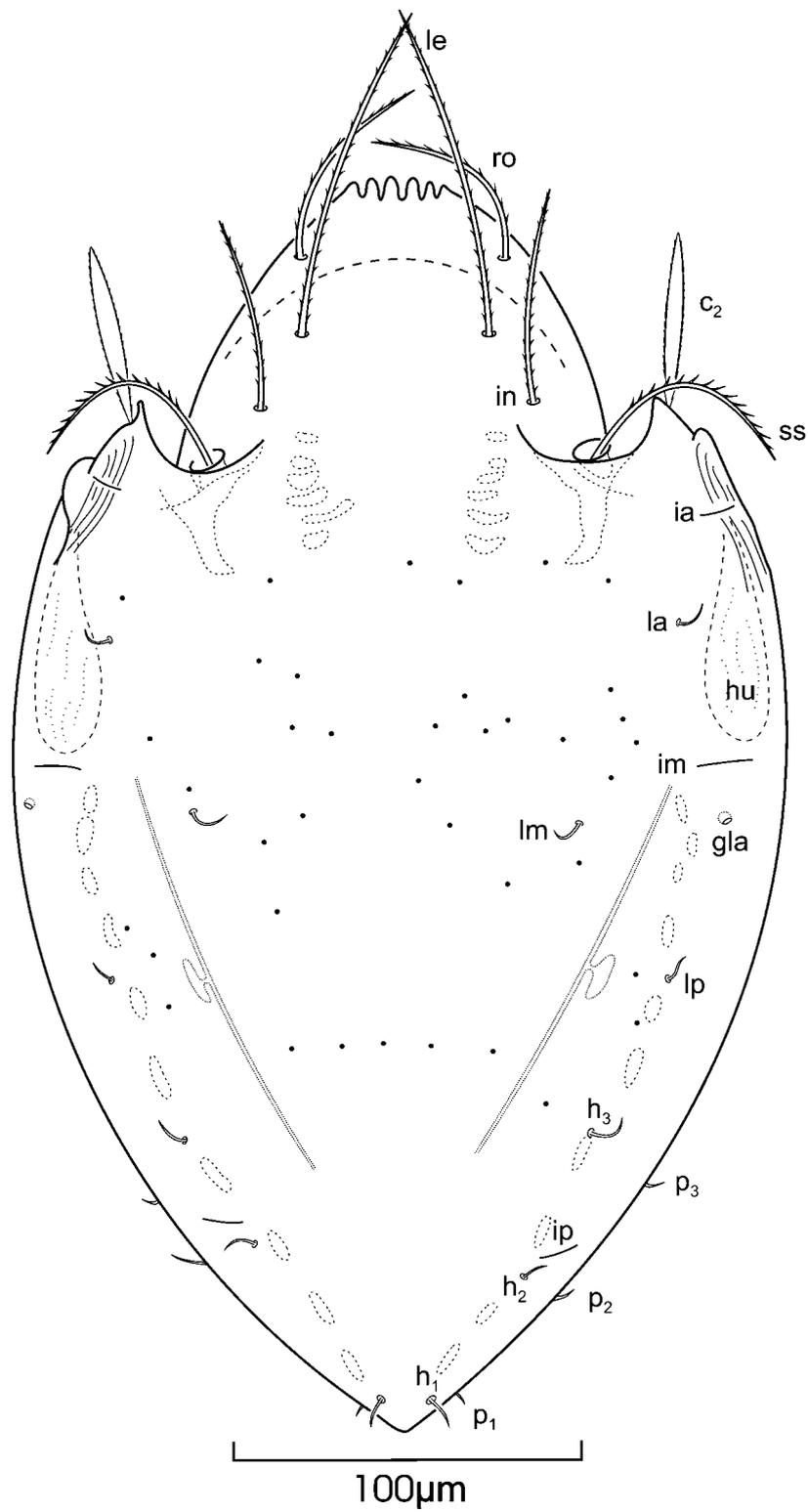


FIGURE 1. *Mabulatrachus iranicus* sp. nov. Dorsal view.

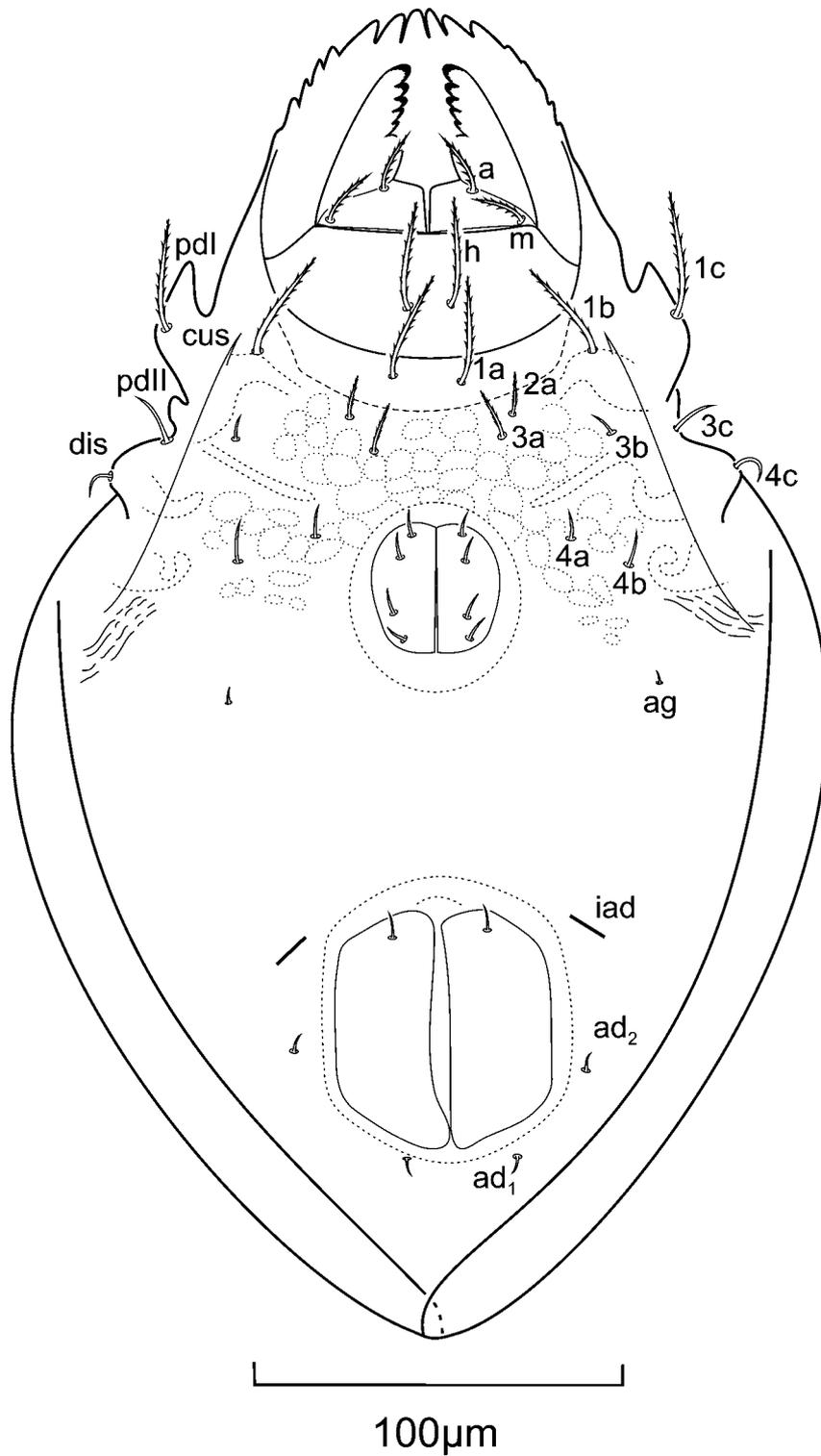


FIGURE 2. *Mabulatrachus iranicus* sp. nov. Ventral view.

The new species described below has a pair of idiosomal saccules, each with a long tubule on either side. The position and shape of this structure differs from the pyriform organ as described by Grandjean (1934, 1954). In the view of the authors, this structure is not a pyriform organ. Aoki and Hirauchi (2000) describe *M. litoralis* with a pyriform organ, but, although smaller, the structure is of a similar form to that in the new species and is also not regarded as a pyriform organ. Unless further investigations prove otherwise, *M. litoralis* should therefore remain in *Mabulatrachus*.

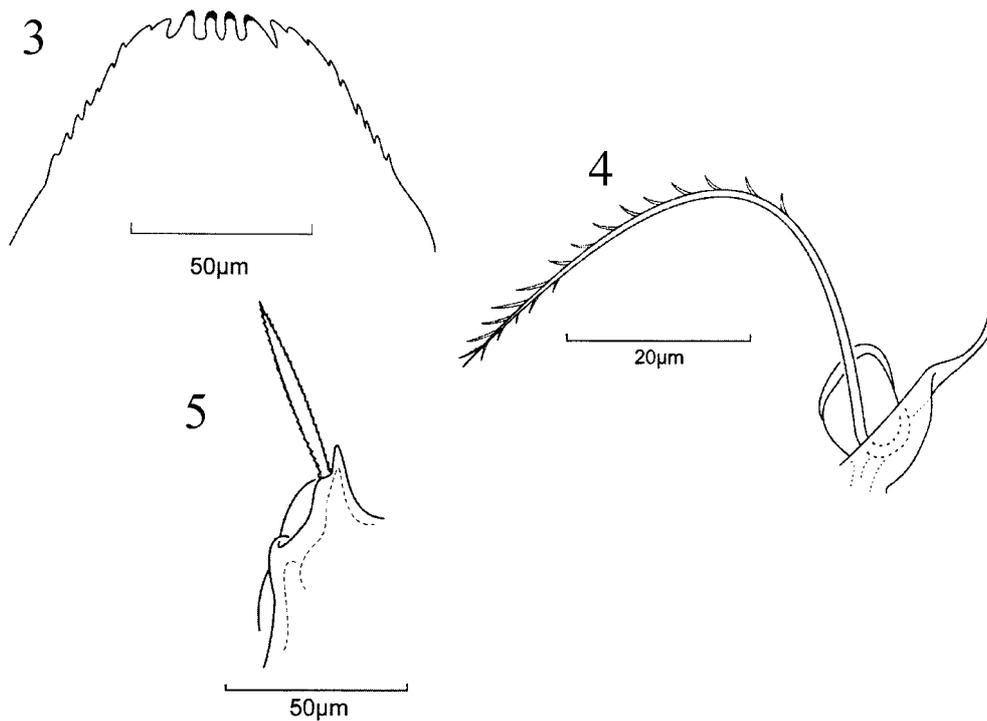
Description of species

Mabulatrachus iranicus sp. nov.

(Figs. 1–9)

Diagnosis

Deep anterior indentations in the rostrum with smaller lateral indentations; lamellar and interlamellar setae long and bilaterally barbed; humeral seta c_2 long, thick and bilaterally barbed; epimeral setae $1a$, $1b$ and $1c$ very long and bilaterally barbed; four pairs of genital setae, one pair of anal setae and two pairs of adanal setae present.



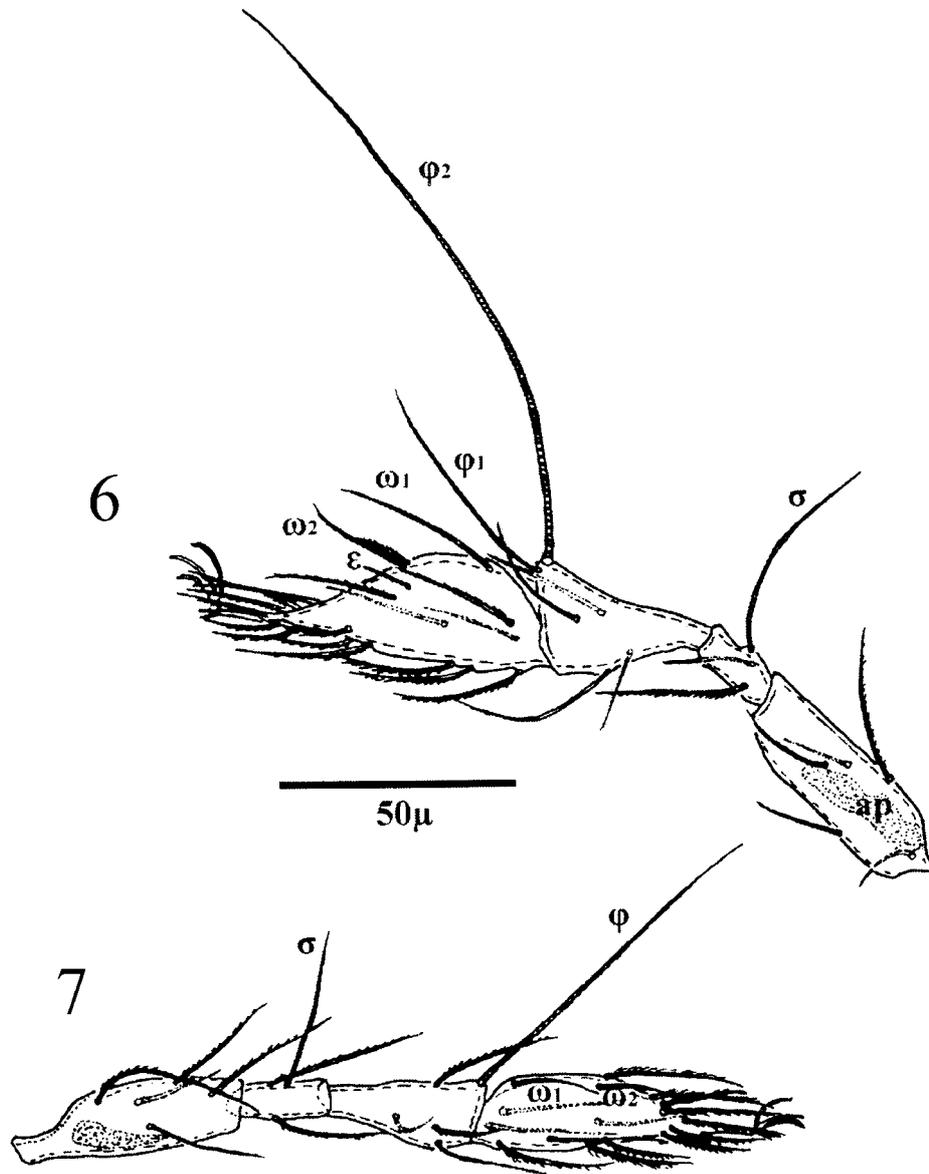
FIGURES 3–5. *Mabulatrachus iranicus* sp. nov. 3, Rostrum, dorsal view; 4, Trichobothrium; 5, Humeral process and humeral seta c_2 .

Description

Measurements. Body length 360–390µm, width 225–230µm.

Prodorsum (Figs. 1, 3, 4, 5). Rostrum anteriorly with 5 deep incisions, laterally with 8 smaller dentations on each side; rostral seta ro unilaterally finely barbed; lamellar seta le long, extending

beyond rostrum and tip of rostral seta, bilaterally barbed; interlamellar seta *in* more or less as long as rostral seta, but bilaterally barbed; sensillus *ss* long, pectinate, with 14–15 barbs on one side and 5–7 minute barbs on the other side; bothridium small, partly covered by notogaster; prodorsal surface smooth.



FIGURES 6–7. *Mabulatrachus iranicus* sp. nov. 6, Leg I, paraxial view; 7, Leg II, paraxial view.

Notogaster (Fig. 1). Notogaster anteriorly broad, conspicuously narrowing posteriorly; dorsosejugal suture absent; humeral process large, triangular, bearing notogastral seta c_2 on apex, fine wrinkles present on humeral process; a second projection of the same size present posterior to humeral process; 10 pairs of notogastral setae present; humeral seta c_2 long, thick, bilaterally barbed; remaining 9 pairs of notogastral setae short, fine and smooth; large humeral sac *hu* present; notogastral lyrifissures *ia*, *im* and *ip* well-developed, but *ih* and *ips* not observed; opening of

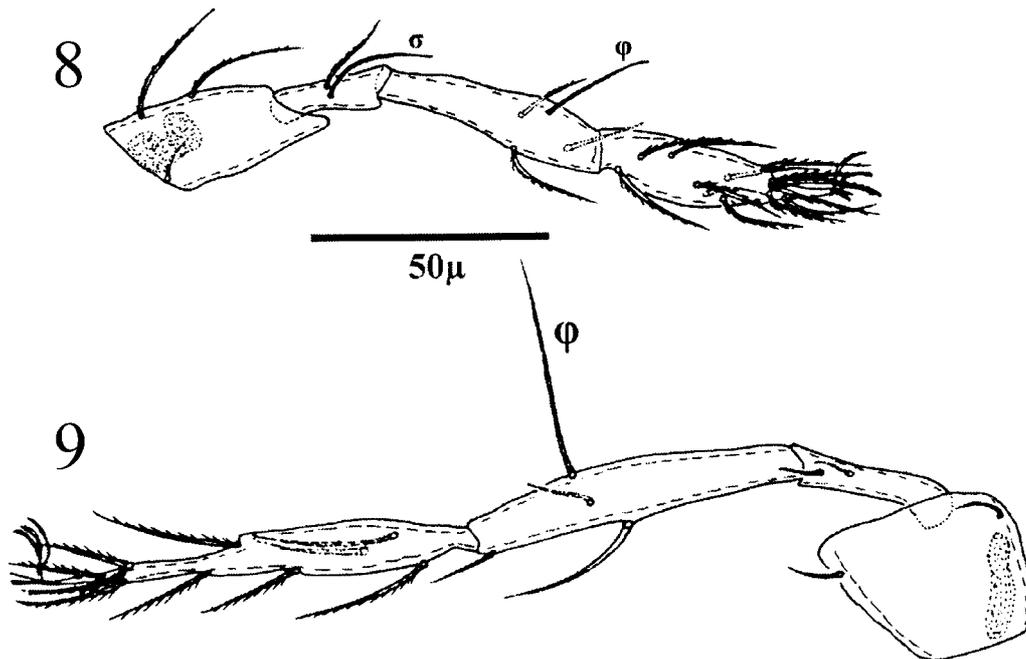
opisthosomal gland *gla* small, situated posteriorly to *im*; large saccule attached to long tubule present in idiosoma, tubules stretching from posterior of *im* to level between notogastral setae *h*₃ and *h*₂; few pores scattered on notogastral surface; ventro-lateral extensions of notogaster overlap posteriorly.

Ventral region (Fig. 2). Hypostomal seta *h* longer than *m* and *a*, all setae barbed; epimeral setal formula 3-1-3-3; epimeral setae *1a*, *1b* and *1c* equal in length, long, rigid, barbed; setae *2a* and *3a* equal in length, about half the length of *1a*, minutely barbed; setae *3c* and *4c* as long as *2a*, fine, smooth; rest of epimeral setae short, fine, smooth; pedotectum I (*pdI*) large, bearing seta *1c*, pedotectum II (*pdII*) much smaller, bearing seta *3c*, discidium (*dis*) clearly visible, bearing seta *4c*; apodemata I, II, *sj* and IV well-developed; custodium (*cus*) long; epimeral surface with some muscle sigillae; fine wrinkles present near apodeme IV; genital plates smaller than anal plates, with 4 pairs of genital setae, 1 pair of aggenital setae, 1 pair of anal and 2 pairs of adanal setae; genital and anal setae longer than aggenital and adanal setae, all anogenital setae thin and smooth; fissures *iad* situated obliquely at antero-lateral corners of anal plates.

Legs (Figs. 6–9). Chaetotaxy: Leg I 1-5-2-4-20; Leg II 1-5-2-4-16; Leg III 2-3-1-3-15; Leg IV 0-2-2-3-12. Solenidiotaxy: Leg I 1-2-2; Leg II 1-1-2; Leg III 1-1-0; Leg IV 0-1-0. Large porose areas *ap* present on paraxial sides of all femora; all legs tridactylous.

Etymology

The specific name '*iranicus*' refers to the type locality of this species, Iran.



FIGURES 8–9. *Mabulatrachus iranicus* sp. nov. 8, Leg III, paraxial view; 9, Leg IV, paraxial view.

Material

Six specimens were collected at the beginning of Kandelous road (2km), Mazandaran province, Iran, from soil under cypress trees (*Cupressus* sp.), 10-IV-2004, M.A. Akrami leg. The holotype and five paratypes are deposited in the Department of Plant Protection, Shiraz University, Iran.

Remarks

Mabulatrachus iranicus **sp. nov.** has intermediate characters between the other known species of this genus.

Mabulatrachus dentatus differs from the new species by (1) smaller size (279–345µm), (2) shorter, smooth lamellar seta (not extending beyond the tip of the rostrum), (3) short interlamellar seta (not extending beyond insertion of the lamellar seta), (4) humeral process smaller, with short and thick humeral seta c_2 inserted on dorsal surface, not on apex, (5) gnathosomal setae a , m and h of equal length, (6) epimeral seta $1a$ much longer than $1b$ and $1c$, (7) epimeral setae $2a$ and $3a$ very short, fine and smooth.

Mabulatrachus litoralis differs from the new species by (1) its size (394–430µm), (2) indentations along rostral border of similar shape and size, (3) interlamellar seta not reaching the point of insertion of the rostral seta, (4) humeral seta c_2 shorter, (5) sensillus with fewer barbs, (6) epimeral setae $1a$, $2a$ and $3a$ smooth, short, equal in length, (7) pores on dorsal surface of notogaster concentrated along lateral margins of notogaster and in humeral region.

Acknowledgement

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