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Authors: Iturrondobeitia, Juan Carlos, and Caballero, Ana Isabel

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# A New Species of *Edwardzetes* (Acari, Oribatida, Ceratozetidae) from Biscay (The Basque Country, Northern Spain)

Juan Carlos Iturrondobeitia\* and Ana Isabel Caballero

*Departamento de Zoología y Dinámica Celular Animal. Facultad de Ciencias. Universidad del País Vasco. E-48940 Leioa (Vizcaya), Spain*

**ABSTRACT**—A new oribatid mite belonging to the family Ceratozetidae is described from the province of Biscay in the Basque Country, Northern Spain, being the second species for this genus in Palearctic Region. *Edwardzetes ubali* is proposed for this new species and main differences among the remaining *Edwardzetes* are presented in this paper.

## INTRODUCTION

Two ceratozetid adult individuals belonging to one species have been found in samples of a research dealing with effects of non prescribed fires on oribatid mites of Biscay (Northern Spain). The species can be identified within the genus *Edwardzetes* and is close to *E. edwardsii* (Nicolet, 1855) which has been, up to now, the only representative known in the Ibero-Balear area and in the remaining part of the Occidental Europe (Pérez-Iñigo, 1993). *E. edwardsii* has been recorded in Spain by Moraza *et al.* (1980) in the Pyrenees of Navarra. Our species differs clearly from *E. edwardsii* mainly in size, sensilli, lamellar cusps, rostrum and notogastral setae. These differences have been considered enough to describe it as a new species record for science. The specific name of the new species is chosen due to the place where it appeared.

## DESCRIPTION

### Material

Two individuals (male and female) were found in the sample labeled as '16sb' at the locality of Carranza (The Ubal Mountain: UTM 30TVN667806, western Biscay Province, Northern Spain) in 29 May 1992. Both specimens were dissected to be studied and preserved on labelled slides in Hoyer medium. The male was designated as holotype and the female as paratype. All the individuals are deposited in the Acarology Collection of the Department of Zoology of the Faculty of Sciences, The Basque Country University (Spain), with the serial number 348.

### Colour and dimensions

Dark brown. Holotype (male) 920  $\mu\text{m}$  length and 630  $\mu\text{m}$  width. The female (paratype) 965  $\mu\text{m}$  length and 625  $\mu\text{m}$  width.

### Prodorsum

Rostrum truncated, showing a trilobulated dorsal aspect because

of a tongue-like wider middle part (Fig. 2A) while rounded in other *Edwardzetes* species (Table 2). Extreme teeth (Fig. 2B), in dorsal view, not so marked as in *Edwardzetes edwardsii* (Fig. 3B). Lamellae long, ending in very small but conspicuous lamellar cusps. Rostral setae (*ro*) of middle size, not very thick, barbed and slightly incurved. Lamellar setae (*le*) not very long, thin and barbed, extending forwards beyond the prodorsum. The interlamellar setae (*in*) as lamellar ones, reaching the rostral margin. Sensillus (*ss*) with thin long stalk and lanceolated head (Fig. 2C). Exobotridial setae (*ex*) of middle size and lightly barbed.

### Notogaster

Anterior border gently curved, almost as wide as long. Pteromorphae prominent, immovable type (Balogh and Balogh, 1992). Four pairs of porosae are present, *Aa* the biggest one. Ten pairs of notogastral setae (*N*) fine, long and without barbation, some of their tip slightly undulated, *c*<sub>2</sub> the longest one (Fig. 1A).

### Ventral Region

Six pairs of moderately long genital setae (*g*). A single pair of aggenital setae (*ag*). Two pairs of anal (*an*) and three pairs of adanal setae (*ad*) are present, of which the pair *ad*<sub>3</sub> is in paranal position, as well as the fissurae *iad* are. Epimeral formula (3-1-3-3) (Fig. 1B).

### Gnathosoma

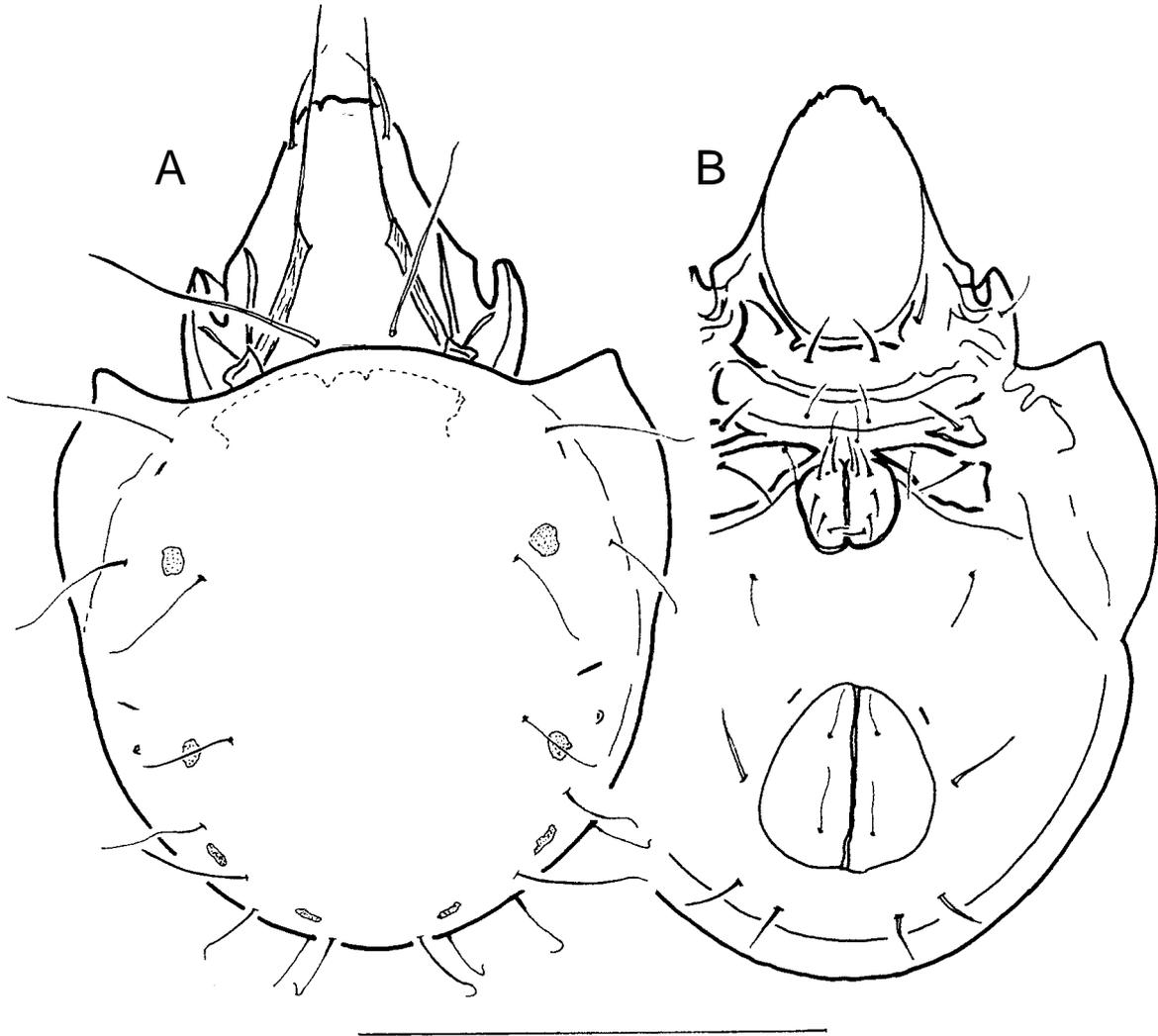
Chelicerae normal type. Palps presenting regular setation (0-1-2-9) from femur to tarsus. Here it is observed one of the distinguishable feature of the family Ceratozetidae referring to the close union between the anterocuminal eupathidium *acm* and solenidium  $\omega$  forming a double horn structure, named by Grandjean (1954) 'la corne double'.

### Legs

All legs tridactyle, presenting some heterodactyly and characterized for their setal length and its fine barbation. The setal formula for each leg summarized in Table 1. Tarsal setation is the same as Grandjean (1940) described for the species *Edwardzetes edwardsii*, and the solenidial formula is as Grandjean (1946) described for the same species. Neither femora nor genu have ventral crests or tooth-like projections as in some species of *Edwardzetes*.

LEG I. (Fig. 4A). On the tarsus the famulus  $\epsilon$  located between solenidia  $\omega_1$  and  $\omega_2$ , the second solenidium ceratiform (Norton, 1977) and of middle length ( $\omega_1$  lost). Fastigial seta *ft'* much longer than *ft''*. Solenidia

\* Corresponding author: Tel. +34-94-601-2461; FAX. +34-94-464-8500.



**Fig. 1.** *Edwardzetes ubali* n. sp: **A:** dorsal view, **B:** ventral view. (bar scale 500  $\mu$ m)



**Fig. 2.** *Edwardzetes ubali* n.sp: **A:** prodorsum in laterodorsal view, **B:** detail of rostrum in dorsal view, **C:** sensillus (bar scale 100  $\mu$ m)

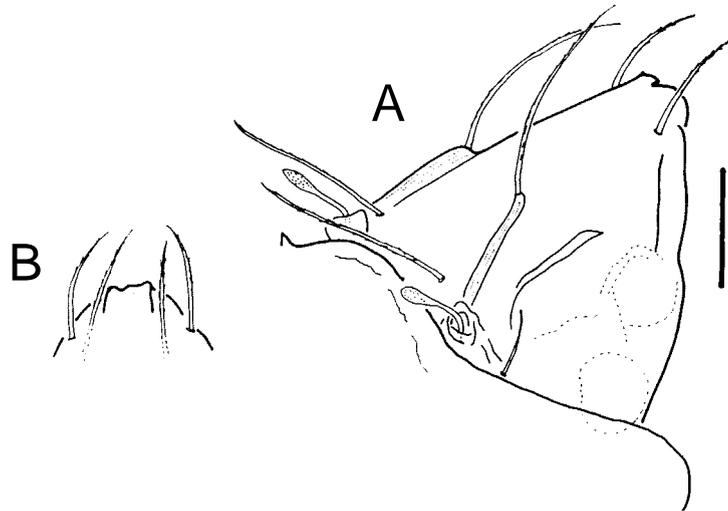


Fig. 3. *E. edwardsii*: A: prodorsum in laterodorsal view, B: detail of rostrum in dorsal view. (bar scale 100  $\mu$ m)

Table 1. *Edwardzetes ubali* n.sp.: setae and solenidia of legs.

	Trochanter	Femur	Genu	Tibia	Tarsus	claw
Leg I	?	5 d, (l) bv'', v''	3 (l) v''	4 (l) (v)	19 + $\epsilon$ (ft), (tc), (it), (p) (pl),(Ad),(pv),(a),s,(u)	3
Solenidia			$\sigma$	$\varphi_1, \varphi_2$	$\omega_1, \omega_2$	
Leg II	?	4 d, l' bv'', v''	3 (l) v''	4 (l) (v)	15 (ft), (tc), (it), (p) (pv), s, (a),(u)	3
Solenidia			$\sigma$	$\varphi$	$\omega_1, \omega_2$	
Leg III	?	3 d, l' ev', l'	1 l' $\sigma$	3 (l) v'	15 (ft), (tc), (it), (pv), s, (a),(u),(p)	3
Solenidia			$\sigma$	$\varphi$	–	
Leg IV	1	2 d, ev'	2 (l)	3 (l)	12 ft', (tc) (pv),s,(a),(u),(p)	3
Solenidia	v'	ev'	–	$\varphi$	–	

of tibia arranged close to each other,  $\varphi_2$  long and setiform ( $\varphi_1$  lost). On the femur dorsal setae (*d*) not so thick, but very long; ventral setae *bv''* very fine, long and without barbation, while the ventral one *v''* is much longer, setiform and barbed.

LEG II. (Fig. 4B). Solenidia of tarsus  $\omega_1$  and  $\varphi_2$  long, more or less equal in length, ceratiform and separated from each other. Fastigial setae (*ft*) long, equal in length, not very thick and barbed. Subunguinal seta (*s*) thick and long, quite different from that of the other tarsi, thicker than the homologous one described by Grandjean (1940) for *E. edwardsii*.

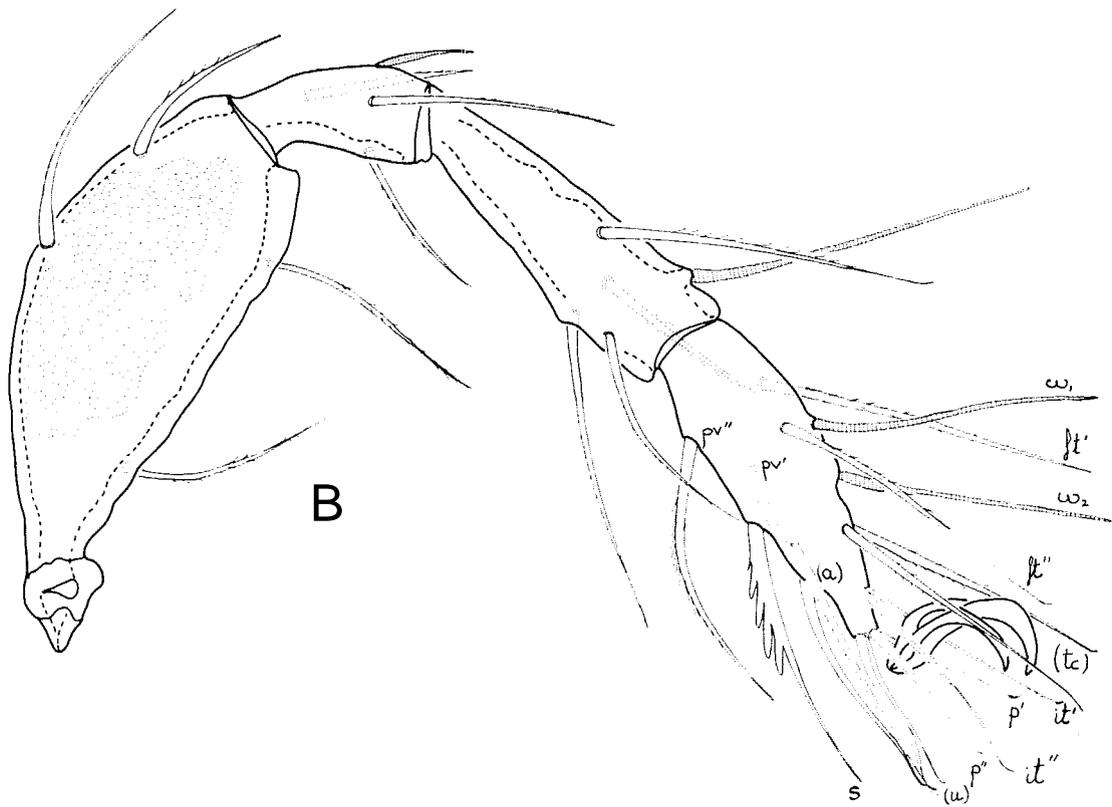
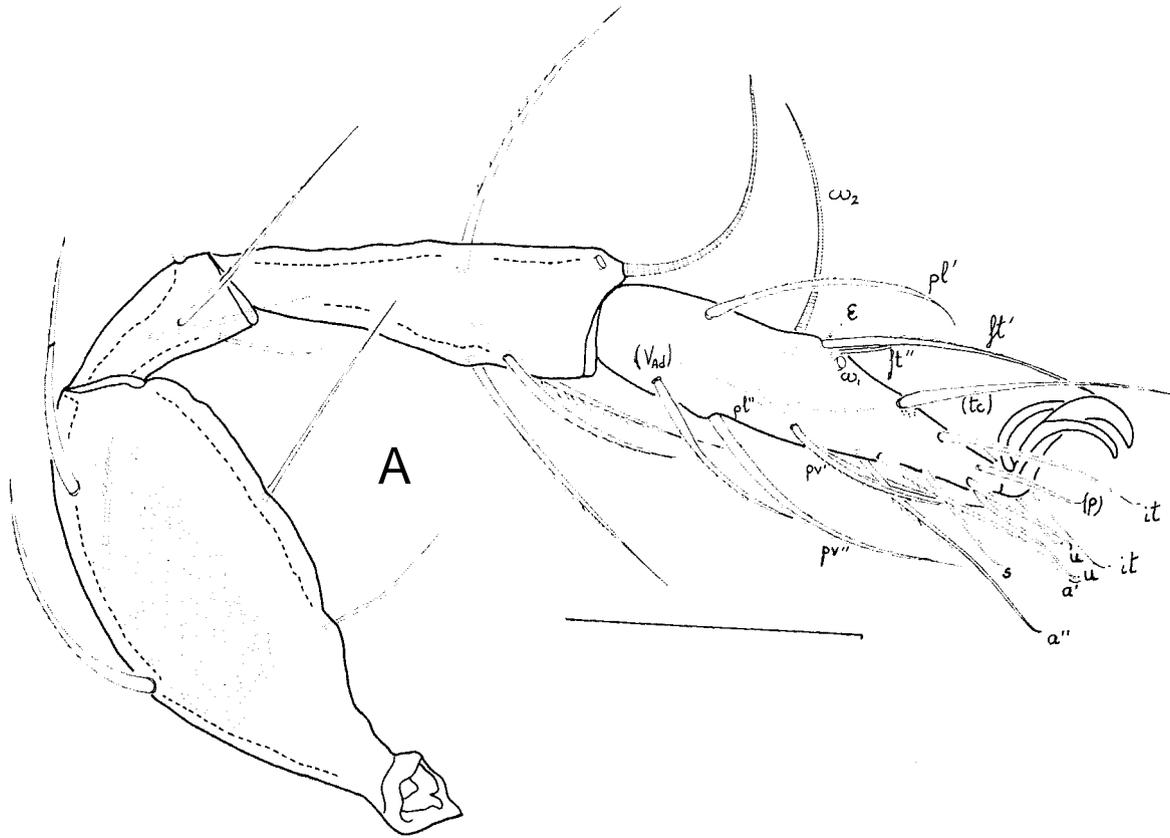
LEG III. (Fig. 4C). Fastigial setae thick and long. Solenidion ( $\varphi$ ) on tibia ceratiform, longer than the baculiform one ( $\sigma$ ) on genu.

LEG IV. (Fig. 4D). All setae in general, long, thick and barbed. Single fastigial seta *ft''* in tarsus long and barbed. Lateral setae (*it*) absent.

## DISCUSSION

The individuals can be identified as *Edwardzetes* fitting perfectly well into the features of the genus (Balogh and Balogh, 1992) although a very small but conspicuous lamellar cusps are present (Fig. 2A), not so well developed as in *Ceratozetes*. Other features confirming the position of our individuals into *Edwardzetes* are: large size and narrow turtorium without little distal tooth and without large pointed ending. The main important features to distinguish species within *Edwardzetes* are those given in Table 2, in which it can be seen that the closest species for the new one is *E. edwardsii*.

Some other differences between *E. ubali* and *E. edwardsii* can be commented on. Rostrum is truncated in both species, showing a trilobulated appearance in dorsal view because of a tongue-like wider middle part, but in *E. ubali* the extreme



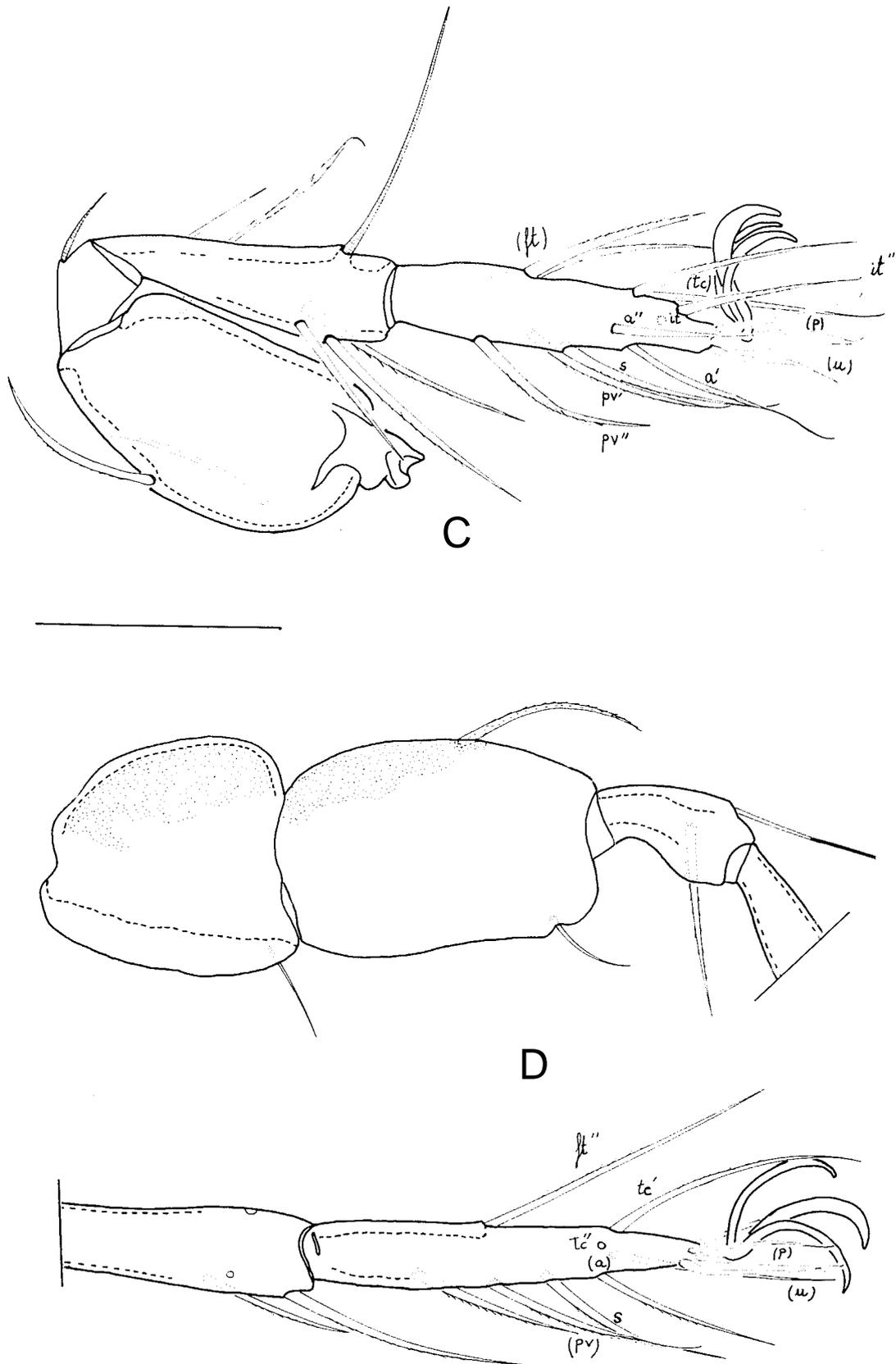


Fig. 4. *Edwardzetes ubali* n. sp. Legs in paraxial face: A: leg I left, B: leg II left, C: leg III right, D: leg IV right. (bar scale 100  $\mu$ m)

**Table 2.** Main identifying characters in the genus *Edwardzetes*:

	1	2	3	4	5	6	7
<i>E. edwardsii</i> (Nicolet, 1855)	770×500	truncated	no	absent	fusiform	thick, long and barbed	none
<i>E. andicola</i> Hammer, 1958	720	rounded	no	absent	club shaped	smooth, thin	small
<i>E. dentifer</i> Hammer, 1958		rounded	no	trace	cup shaped	short, thread-like	thick, great
<i>E. elongatus</i> Wallwork, 1966	898×550	rounded	no	absent	cup shaped	moderately long, smooth, thin	thick, medium size
<i>E. novazealandicus</i> Hammer, 1967	730	rounded	no	absent	cup shaped	short	thick, great
<i>E. australis</i> Stary & Block, 1995	808×480	rounded	no	trace	cup shaped	not very long, smooth	thick, tooth like
<b><i>Edwardzetes ubali</i></b> n.sp.	945×627	truncated	very small	absent	lanceolated	long, fine, glabrous	none

1: mean values of body size (µm). 2: rostral shape. 3: lamellar cusps. 4: translamella. 5: sensillar head. 6: notogral setae. 7: projection in genu II

teeth are not so marked, while in *E. edwardsii* those ones are more pointed (Alberti *et al.*, 1992). It must be stated that in other species of the genus the rostral shape has been described as rounded, feature that absolutely differs from the mentioned before.

Referring to leg setation, *E. ubali* presents the same tibial formula as that Grandjean (1940) described for *E. edwardsii*, as well as the same solenidial one (Grandjean, 1946). These data differ from those presented by Stary and Block (1995) for the species *E. australis*. The absence of projection on genu II is also another feature coinciding with *E. edwardsii* but differing from the other species of the genus. This structure on genu II appears to resemble a very thick and great spine in some *Edwardzetes* (Table 2). Subunguinal seta (s) of tarsus II is quite different from that of the other tarsi, thicker than the homologous one described by Grandjean (1940) for *E. edwardsii*. *Edwardzetes* is not a very common genus and it prefers moist media, mainly mosses. Up to now *E. ubali* is the largest species within the genus *Edwardzetes*.

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