THE GENUS *BREVINYCHUS* MEYER (ACARI: TETRANYCHIDAE) WITH THE DESCRIPTION OF A NEW SPECIES FROM TANZANIA

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ABSTRACT – A new spider mite species *Brevinychus meshacki* Toroitich and Ueckermann **n. sp.**, collected on *Philonoptera eriocalyx* Harms (Schrire) from Sangasanga in Mvomero district of Tanzania, is described and illustrated. This species is distinct from the other species of this genus by having only one pair of dorsocentral setae *d*1 being of similar length to the dorsolateral setae, whereas the other dorsocentrals are much shorter than the dorsolateral setae. Brief notes on the two other known species *Brevinychus mbandu* and *Brevinychus parvulus* are also given. The genus characteristics of *Brevinychus* Meyer and a key to the species are also provided.

Key words – Tetranychidae, Brevinychus, *Philonoptera eriocalyx* Harms, Tanzania.

INTRODUCTION

Meyer (1974) erected the genus *Brevinychus* in the subfamily Tetranychidae based on two species *Brevinychus mbandu* and *Brevinychus parvulus*. Meyer (1974) designated *B. mbandu* as the type species. The type material of this species was collected on *Philonoptera violacea* (Klotzsch) Schrire (Fabaceae: Papillionoideae) mostly in and around the Kruger National Park in South Africa. The type material of *B. parvulus* was collected on *Neorautanenia* sp. (Fabaceae) and *Diospyros zombensis* (B.L. Burtt) F. White (Ebenaceae) in Malawi. This genus is small, consisting of only three known species and its economic importance is not yet known. It is therefore possible that this genus has more species that are yet to be described.

MATERIALS AND METHODS

The material on which this article is based was collected from *Philonoptera eriocalyx* tree by the roadside in Sangasanga area, Mvomero district of Tanzania. The specimens were preserved in 70% ethanol (Sciencescope, Nairobi, Kenya) and later examined under a Leica MZ8 (Leica Microsystems, Wetzlar, Germany) dissecting microscope. They were then mounted in polyvinyl alcohol medium on glass microscope slides for identification and description. Drawings were made under a Zeiss Axioskope (Carl Zeiss, Jena, Germany) phase contrast compound microscope using a drawing tube. Setal notations used are according to Lindquist (1985). Body measurements were taken under the microscope directly connected to a computer using the Olympus Soft Imaging System (Soft Imaging Systems, Münster, Germany) and are given in micrometers (μm). The measurements given are based on the holotype followed by the range of paratype measurements in parentheses.

The leg setal counts include solenidia with the duplex setae indicated in brackets. The holotype and four paratypes are deposited in the Biosystematics Support Unit collection, *icipe* – African Insect Science for Food and Health, Nairobi, Kenya, and another

three paratypes have been deposited in the Arachnida Collection of the Biosystematics Programme, ARC-PPRI, Pretoria, South Africa.

Subfamily TETRANYCHIDAE Berlese
Genus *Brevinychus* Meyer, 1974

Brevinychus mbandu Meyer

This genus closely resembles *Mixonychus* Ryke and Meyer in that it has a claw-like empodium which lacks proximoventral hairs, true claws pad-like provided with tenent hairs, duplex setae on tarsus I are distal and approximate, dorsally it has 3 pairs of propodosomal setae (*ve, Sci, Sce*), and 10 pairs of opisthosomal setae (*c*1, *c*2, *c*3, *d*1, *d*2, *e*1, *e*2, *f* 1, *f* 2, *h*1) with most of the body setae borne on tubercles. Ventrally, it has two pairs of anal and two pairs of para-anal setae.

It can be differentiated from *Mixonychus* Ryke and Meyer by the empodial claw which is very short, about the same length as the pads of true claws, whereas that of *Mixonychus* is much longer than pads of true claws, more than half the length of tenent hairs. The opisthosoma of this genus is punctate, whereas that of *Mixonychus* is reticulate. The economic importance of this genus is not known.

Brevinychus meshacki Toroitich and Ueckermann n. sp. (Figs. 1, 2)

Types – Holotype female, Tanzania, Mvomero district, by the roadside in Sangasanga area (06° 55.249[1] S; 037° 30.074[1] E) on *P. eriocalyx* tree; date: 16 February 2008; collector: Faith Toroitich; three female paratypes and one paratype nymph, same data

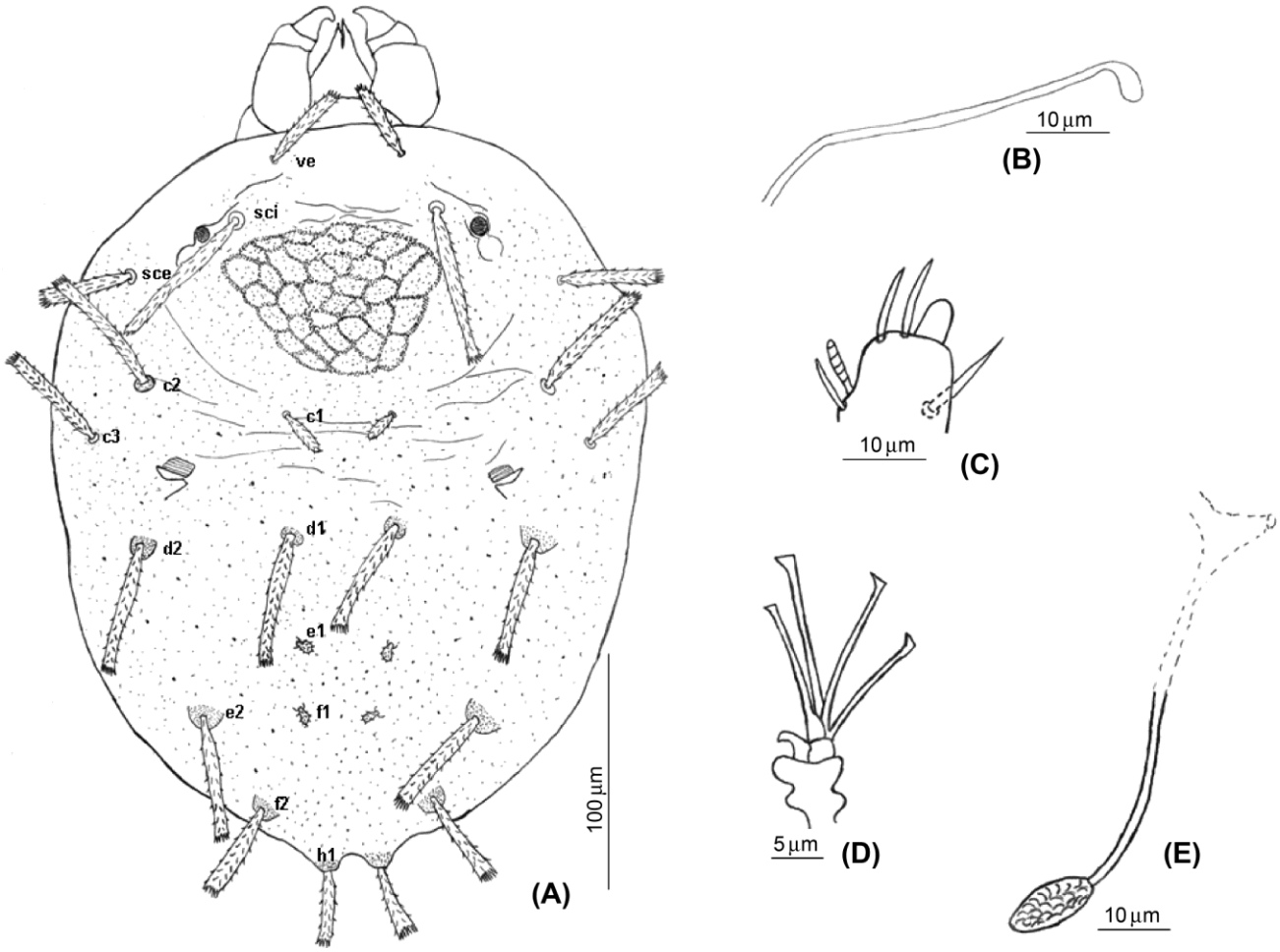

Fig. 1. *Brevinychus meshacki* Toroitich and Ueckermann **n. sp.** female – A. dorsum; B. peritreme; C. palpus; D. empodium; E. spermatheca.

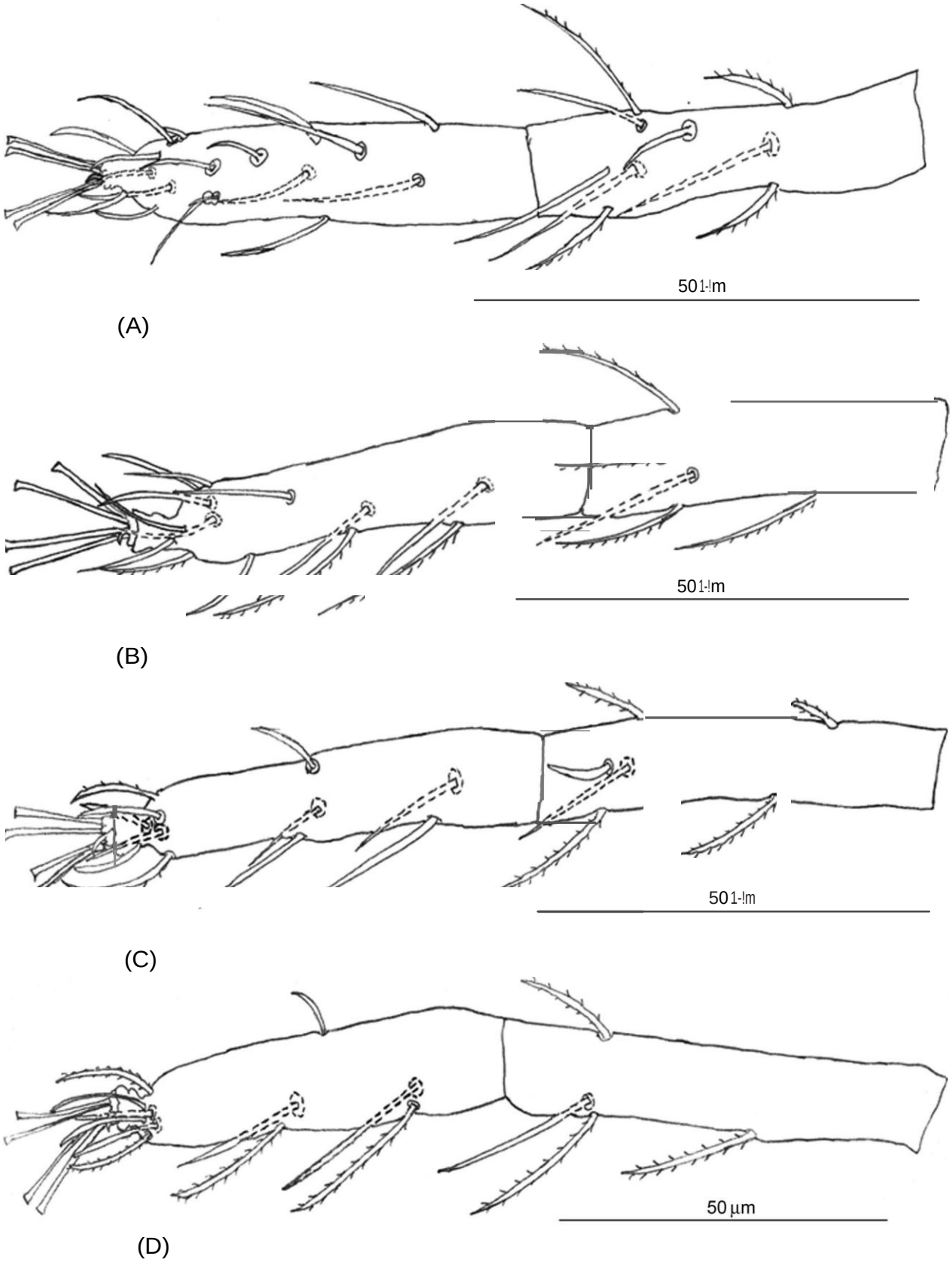

Fig. 2. *Brevinychus meshacki* Toroitich and Ueckermann n. sp. female legs- A. tarsus-tibia I; B. tarsus-tibia II; C. tarsus-tibia III; D. tarsus-tibia IV

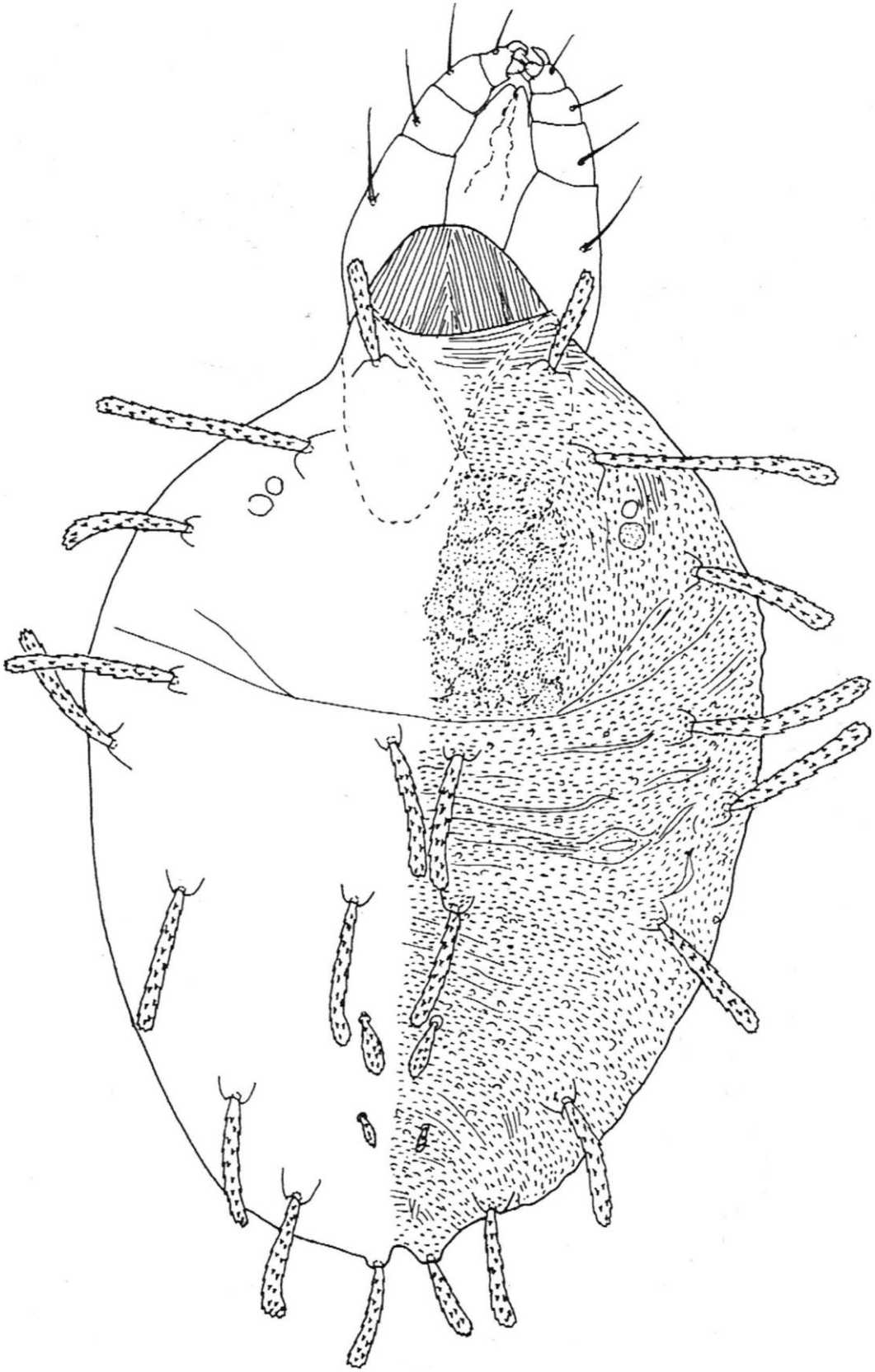

Fig. 3. *Brevinychus mbandu* Meyer (adopted from Meyer (1974), with permission).

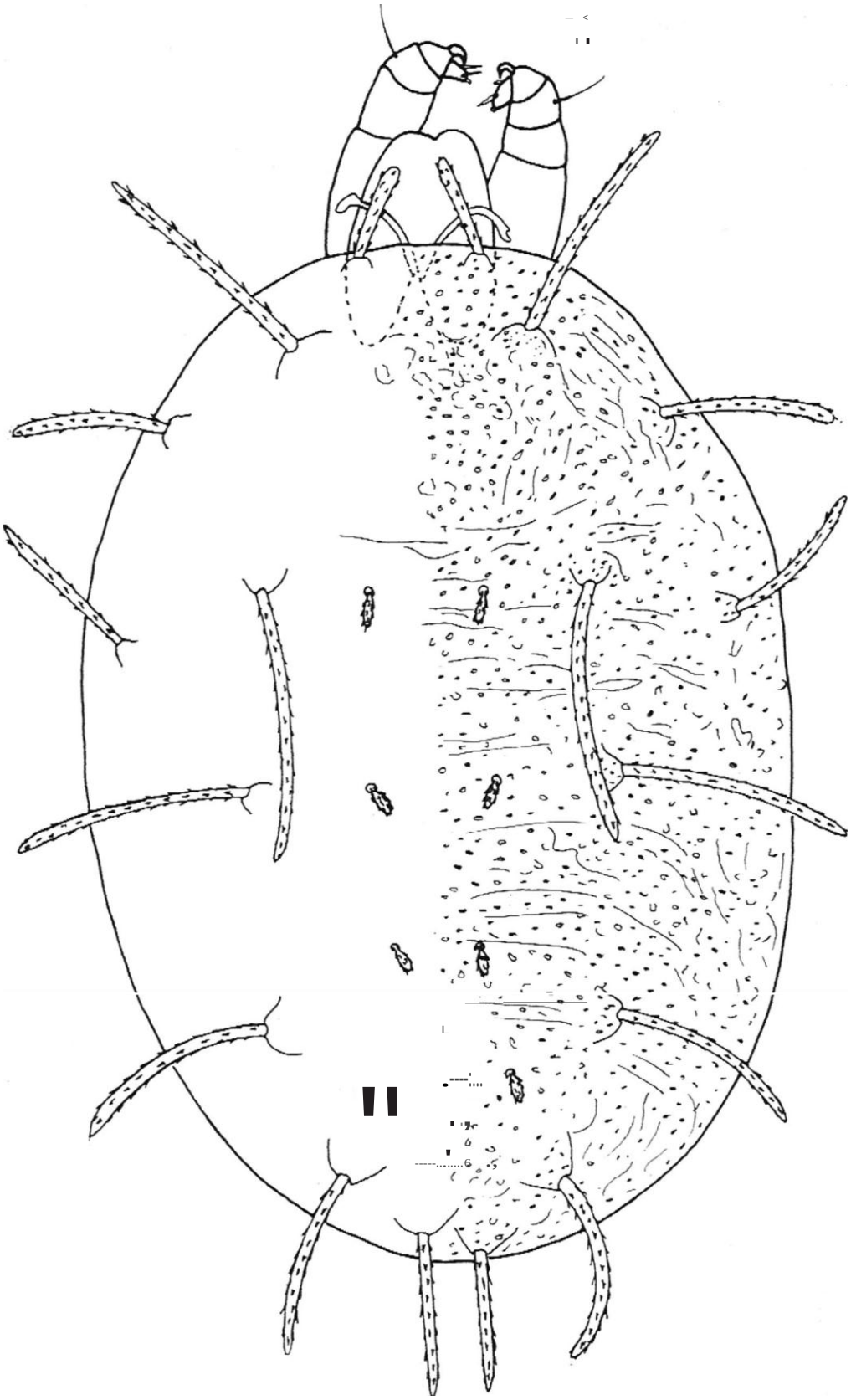

Fig. 4. *Brevinychus parvulus* Meyer (adopted from Meyer (1974), with permission).

as holotype, were deposited in *icipe* – Biosystematics Support Unit, Kenya. Three female paratypes, same data as holotype, were deposited in ARC-PPRI, Pretoria, South Africa. The following description is based on the holotype and three adult female specimens ($N = 4$).

Description – **FEMALE** – Length of body (including gnathosoma) in micrometers: 370(370–395), width 267(262–272).

Dorsum – Body punctuate except for a large reticulate pattern located centrally between the *Sci* pair of setae of the propodosoma and extending posteriorly almost to the *c*1 setae (Fig. 1A). The peritreme is simple and ends with a terminal bulb (Fig. 1B) and the dorsal body setae are serrate except setae *e*1 and *f* 1 which are spatulate (Fig. 1A): *ve* 42(40–42), *Sci* 72 (61–72), *Sce* 46(43–46), *c*1 19(12–24), *c*2 59(59–69), *c*3 49(42–49), *d*1 56(53–58), *d*2 60(54–60), *e*1 7(7–9), *e*2 58(54–60), *f* 1 8(8–9), *f* 2 44(44–48), *h*1 39(37–40).

Venter – Spermatheca oval-shaped with a long narrow tube which fades out near the area between legs III and IV (Fig. 1E). Ventral setae are slender and smooth with lengths as follows: *ag* 37.5(30–42.5), *g*1 20(20–22.5), *g*2 22.5(22.5–25), *ps*1 12(12–15), *ps*2 15(12.5–17.5), *h*2 17.5(15–22.5), *h*3 25(22.5–25).

Gnathosoma – Palpi five-segmented, palp tarsus with relatively thick terminal sensillum, 1.5 times as long as broad (Fig. 1C).

Legs – Empodium very short and claw-like (Fig. 1D).

Chaetotaxy – *tarsi* – 14(2)-11(1)-11-11; tibiae: 9-5-6-4; genua: 5-5-3-2; femora: 5-5-5-2; trochanters: 1-1-1-1; coxae: 2-2-1-1.

Lengths – Leg I 310(300–325), Leg II 255(250–255), Leg III 275(250–275), and Leg IV 290(275–290). Tibio-tarsi (Fig. 2): I (115), II (139), III (153), and IV (136).

NYMPH – The protonymph is similar to the adult female in shape and dorsal setation but has fewer leg setae: tarsi: 13(1)-10-10-10; tibiae: 7-5-4-3; genua: 3-3-1-1; femora: 3-3-2-2; trochanters: 1-1-1-1; coxae: 2-2-1-1.

Diagnosis – This species can be recognized by the first, third, and fourth pairs of dorsocentral setae (*c*1, *e*1, and *f* 1) (Fig. 1), which are much shorter than the dorsolateral setae; only the second dorsocentral setae (*d*1) is of similar length to the dorsolateral setae; and the central region of the propodosoma is distinctly reticulate. In *B. mbandu*, the central region of the prodorsum is distinctly reticulate, as in *B. meshacki*, but both the *e*1 and *f* 1 are shorter than the dorsolateral setae (Fig. 3) and in *B. parvulus*, all the dorsocentrals (*c*1, *d*1, *e*1, and *f* 1) are shorter than the dorsolateral setae (Fig. 4) and the propodosoma is entirely punctuate.

Etymology – The species is named after Dr. Meshack Obonyo, husband of the first author, for his much valued encouragement and support.

Brevinychus mbandu Meyer, 1974

This species is recognized by having only the third (*e*1) and fourth (*f* 1) pairs of dorsocentral setae much shorter than other dorsal body setae and the body punctuate with a large reticulate area on the center of the propodosoma (Fig. 3). Leg chaetotaxy is as follows: coxae 2-2-1-1; femora 6-5-4-3; genua 5-5-3-2; tibiae 8/9(1)-6-5-5; tarsi 13(1)+2dupl – 12+1dupl-10(1)-10(1).

Brevinychus parvulus Meyer, 1974

This species is distinctive in having all four pairs of dorsocentral setae (*c*1, *d*1, *e*1, and *f* 1) minute and the remainder of the dorsal setae relatively long, and the entire dorsum punctate (Fig. 4). Leg chaetotaxy is as follows: coxae 2-2-1-1; femora 8-6-3-2; genua 5-5-3-2; tibiae 8/9(1)-5-5-5; tarsi 11(1)+2dupl – 12+1dupl-10(1)-10(1).

Key to the species of *Brevinychus* females, (males unknown)

1. Dorsocentral setae (*c*1, *d*1, *e*1 and *f* 1) subequal in length, all much shorter than the dorsolateral setae, propodosoma entirely punctuate . . . . . **B. *parvulus* Meyer**
– Dorsocentral setae of varying lengths, with at least one pair similar in length to the dorsolateral setae; propodosoma with a large central reticulate area **2**
2. Opisthosoma with third and fourth pairs of dorsocentral setae (*e*1 and *f* 1) much shorter than the dorsolateral setae (*c*1 and *d*1 long) . . . . . ***B. mbandu* Meyer**
– Opisthosoma with the first, third and fourth pairs of dorsocentrals (*c*1, *e*1 and *f* 1) much shorter than the dorsolateral setae, (only *d*1 long) . . . . . ***B. meshacki* Toroitich & Ueckermann n. sp.**

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