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 Toroitch 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 d1 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: Papilionoideae) 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 zambensis (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 Axioscope (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 (*c1, c2, c3, d1, d2, e1, e2, f1, f2, h1*) 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* Toroitech and Ueckermann n. sp.  
(Figs. 1, 2)

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

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![Fig. 1. Brevinychus meshacki Toroitech and Ueckermann n. sp. female – A. dorsum; B. peritreme; C. palpus; D. empodium; E. spermatheca.](image-url)
Fig. 2. *Brevynychus 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. Brevynychus mbando 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 c1 setae (Fig. 1A). The peritreme is simple and ends with a terminal bulb (Fig. 1B) and the dorsal body setae are serrate except setae e1 and f1 which are spatulate (Fig. 1A): ve 42(40–42), ScI 72 (61–72), Sce 46(43–46), c1 19(12–24), c2 59(59–69), c3 49(42–49), d1 56(53–58), d2 60(54–60), e1 7(7–9), e2 58(54–60), f1 8(8–9), f2 44(44–48), h1 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), g1 20(20–22.5), g2 22.5(22.5–25), ps1 12(12–15), ps2 15(12.5–17.5), h2 17.5(15–22.5), h3 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 (e1, e1, and f1) (Fig. 1), which are much shorter than the dorsolateral setae; only the second dorsocentral setae (d1) 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 e1 and f1 are shorter than the dorsolateral setae (Fig. 3) and in B. parvulus, all the dorsocentrals (e1, d1, e1, and f1) 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 (e1) and fourth (f1) 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 (e1, d1, e1, and f1) 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. Dorosentral setae (e1, d1, e1 and f1) subequal in length, all much shorter than the dorsolateral setae, propodosoma entirely punctuate
   - Dorosentral setae of varying lengths, with at least one pair similar in length to the dorsolateral setae; propodosoma with a large central reticulate area
   - B. parvulus Mayer
   - Dorosentral setae with third and fourth pairs of dorsocentral setae (e1 and f1) much shorter than the dorsolateral setae (e1 and d1 long)
   - B. mbandu Mayer
   - Dorosentral setae with the first, third and fourth pairs of dorsocentrals (e1, e1 and f1) much shorter than the dorsolateral setae, (only d1 long)
   - B. meshacki Toroitich & Ueckermann n. sp.

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