

Back in Europe: *Quamtana* spiders (Araneae: Pholcidae) in Germany

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Abstract. Two undescribed species of the African pholcid spider genus *Quamtana* have been found in German greenhouses and plant markets since 2012. Both species seem to have established stable populations. This genus has not been previously recorded from Europe, except for a fossil specimen in Eocene amber from the Paris Basin that was tentatively assigned to *Quamtana* and that is estimated to date from 53 million years ago. Since the actual geographic origins of the two species (probably South and/or tropical Africa) are unknown, we do not formally describe them.

Keywords: Alien, greenhouse, introduced species, plant market

Zusammenfassung. Zurück in Europa: Spinnen der Gattung *Quamtana* (Araneae: Pholcidae) in Deutschland. Zwei unbeschriebene Arten der afrikanischen Gattung *Quamtana* wurden seit 2012 in deutschen Pflanzenmärkten und Gewächshäusern gefunden. Beide Arten scheinen stabile Populationen etabliert zu haben. Abgesehen von einer Art in Bernstein aus dem Eozän des Pariser Beckens, die mit Vorbehalt in die Gattung *Quamtana* gestellt wurde und deren Alter auf 53 Millionen Jahre geschätzt wird, ist die Gattung bisher nicht in Europa nachgewiesen worden. Da der eigentliche geographische Ursprung der beiden Arten nicht bekannt ist (vermutlich Südafrika und/oder Afrikanische Tropenländer), werden sie hier nicht formal beschrieben.

Spiders can reach new regions, countries, and continents in many ways. While some species expand their areas of distribution naturally, most alien species seem to have been introduced by human activities (Kobelt & Nentwig 2008). In recent years, several findings of non-native spiders were reported in Germany (e.g., Kielhorn & Rödel 2011, Schäfer & Deepen-Wieczorek 2014, Šestáková et al. 2014, Sühlig 2010). Potted plants may be among the most important vectors. As a result, many new species can be found in facilities displaying or selling exotic plants (Reiser 2013).

The pholcid spider genus *Quamtana* Huber, 2003 currently includes 26 described extant species (World Spider Catalog 2015). Most of these small to tiny shrub and litter-dwelling species are found in South Africa, but a few species occur further north in tropical Africa (Guinea, Cameroon, Congo DR, Uganda,

Rwanda, Kenya, Tanzania, Angola; Huber 2003, Huber & Warui 2012, Huber & Kwapong 2013, Huber et al. 2014). Recently, Penney (2007) described a fossil specimen from Eocene amber from the Paris Basin in France and tentatively assigned the species to the genus *Quamtana*. This amber is estimated to date from 53 million years ago, when the region may have had a climate similar to that in southern Africa today (Nel et al. 2004).

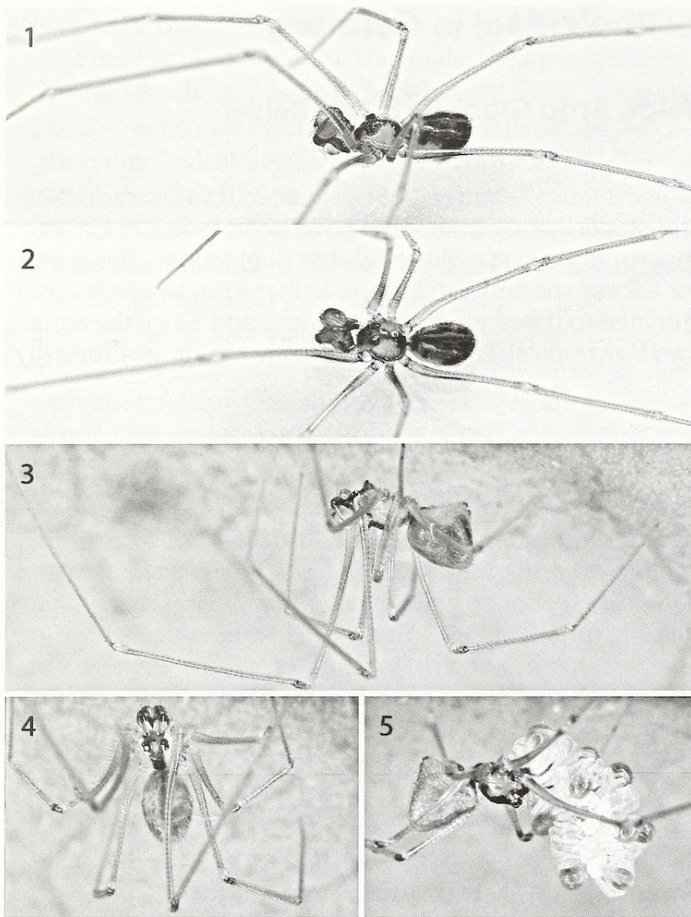
In this short note we report on findings of two different species of *Quamtana* in German plant markets and greenhouses where they seem to have established viable populations. Both species are undescribed and will not be formally described here because their actual geographic origins are unknown. Many undescribed species of African *Quamtana* exist in collections (B.A. Huber unpubl. data) and the two German species reported below may well be among them.

Results

Quamtana sp. A (Figs 1-2, 6-16, 21-22)

Material examined. GERMANY, Hessen, Witzhausen, greenhouse for tropical economic plants (University of Kassel) (51°20.67'N, 9°51.62'E; ~135 m a.s.l.), 29.03.2013 (S. Rehfeldt), 1♂1♀ in ZFMK (Zoologisches Forschungsmuseum Alexander Koenig; Ar 12707); same locality, 07.03.2015 (S. Reh-

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Figs 1-5: Live specimens of *Quamtana* sp. A, male from Jena (1-2), and *Quamtana* sp. B, male and female with spiderlings from Berlin (3-5) (Photos: A. Grabolle and B. A. Huber)

feldt), 2♂3♀ in ZFMK (Ar 12708). Thüringen, Jena, Botanical Garden (50°55.9'N, 11°35.1'E; ~170 m a.s.l.), 06.02.2012 (A. Grabolle), 1♂ in ZFMK (Ar 12709).

Preliminary diagnosis. This species is most similar to the Ugandan *Q. kabale* Huber, 2003 (procursus shape; female internal genitalia) but easily distinguished by presence of anterior median eyes (Figs 8-9); male eye triads not on short stalks (Fig. 7); male cheliceral apophyses and corresponding female epigynal pockets farther apart (Figs 10, 21); male palpal femur very small relative to tibia (Figs 11-12); sternum and median band on carapace darker (Figs 6, 10).

Preliminary description. Body length 1.2-1.5 mm; tibia 1 length in 4 males: 2.3, 2.4, 2.5, 2.9; in 3 females: 1.7, 1.9, 1.9. Coloration mostly pale ochre, with distinct dark median band on carapace (Figs 1-2, 6, 8, 13), with or without internal abdominal marks. Male chelicerae with pair of frontal apophyses very similar to *Q. mabusai* Huber, 2003 (cf. fig. 140 in Huber 2003) and to *Quamtana* sp. B below. Male palps in general similar to *Q. kabale* (cf. figs 138

and 139 in Huber 2003), but femur smaller relative to tibia and procursus and bulbal apophysis different (Figs 11-12, 15-16).

Natural history. The Witzenhausen specimens were collected in the humid leaf litter and under stones of a greenhouse. The first specimens were collected in 2013, and a further visit in 2015 (by SR) revealed numerous specimens (in addition to those collected), including females with egg-sacs and juveniles. This suggests that this is an established population rather than continuous introductions. Temperature in the greenhouse is permanently above 22 °C and can reach up to 38 °C in summer. Plants are watered weekly and only biological pest control is applied. Other than *Quamtana* sp. A, specimens of *Stenochrus portoricensis* Chamberlin, 1922 (Schizomida: Hubbardiidae) (cf. Armas & Rehfeldt 2015) and *Triaeris stenaspis* Simon, 1891 (Araneae: Oonopidae) (cf. Korenko et al. 2014) were found in the same microhabitat.

The Jena specimen was collected in the succulent house of the botanical garden, under stones of a lining wall along the path.

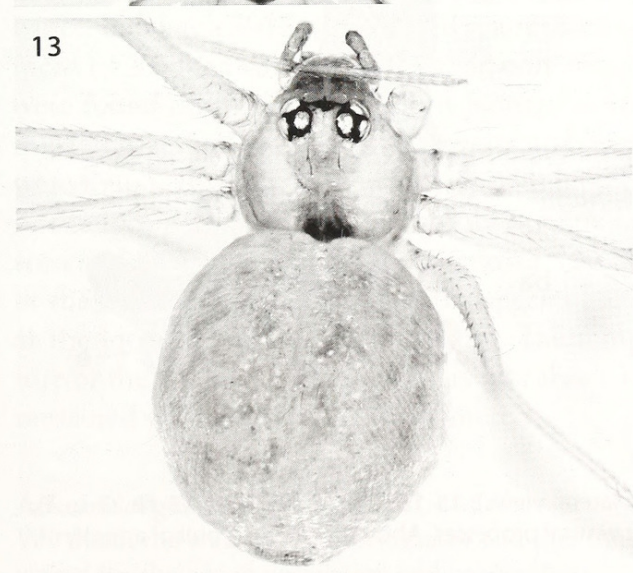
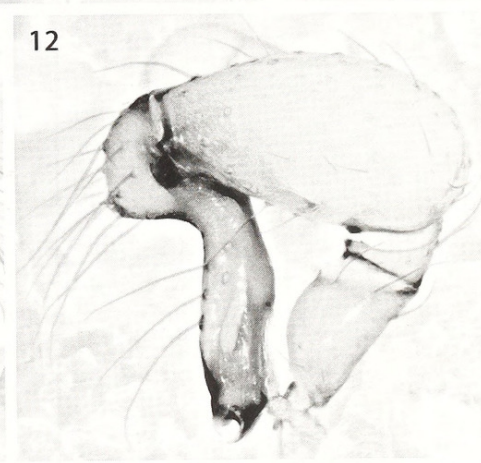
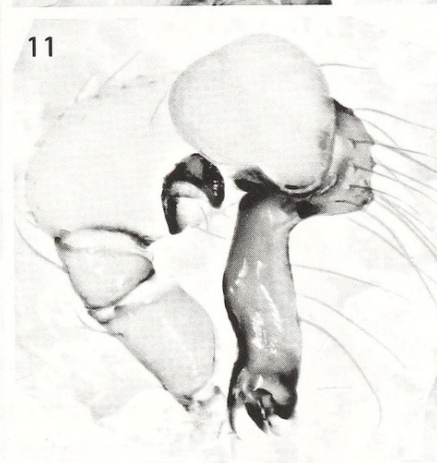
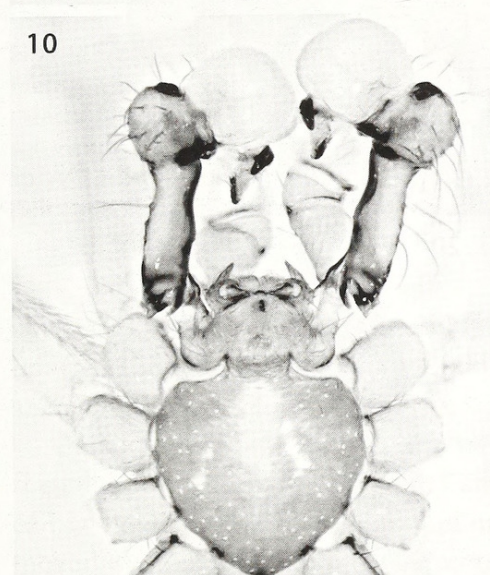
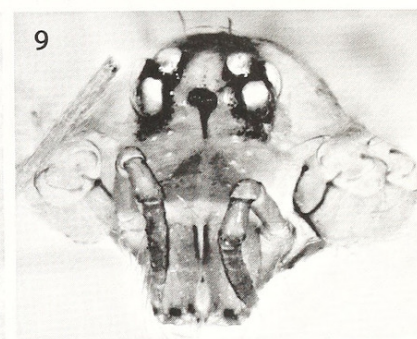
Quamtana sp. B (Figs 3-5, 17-18, 23-24)

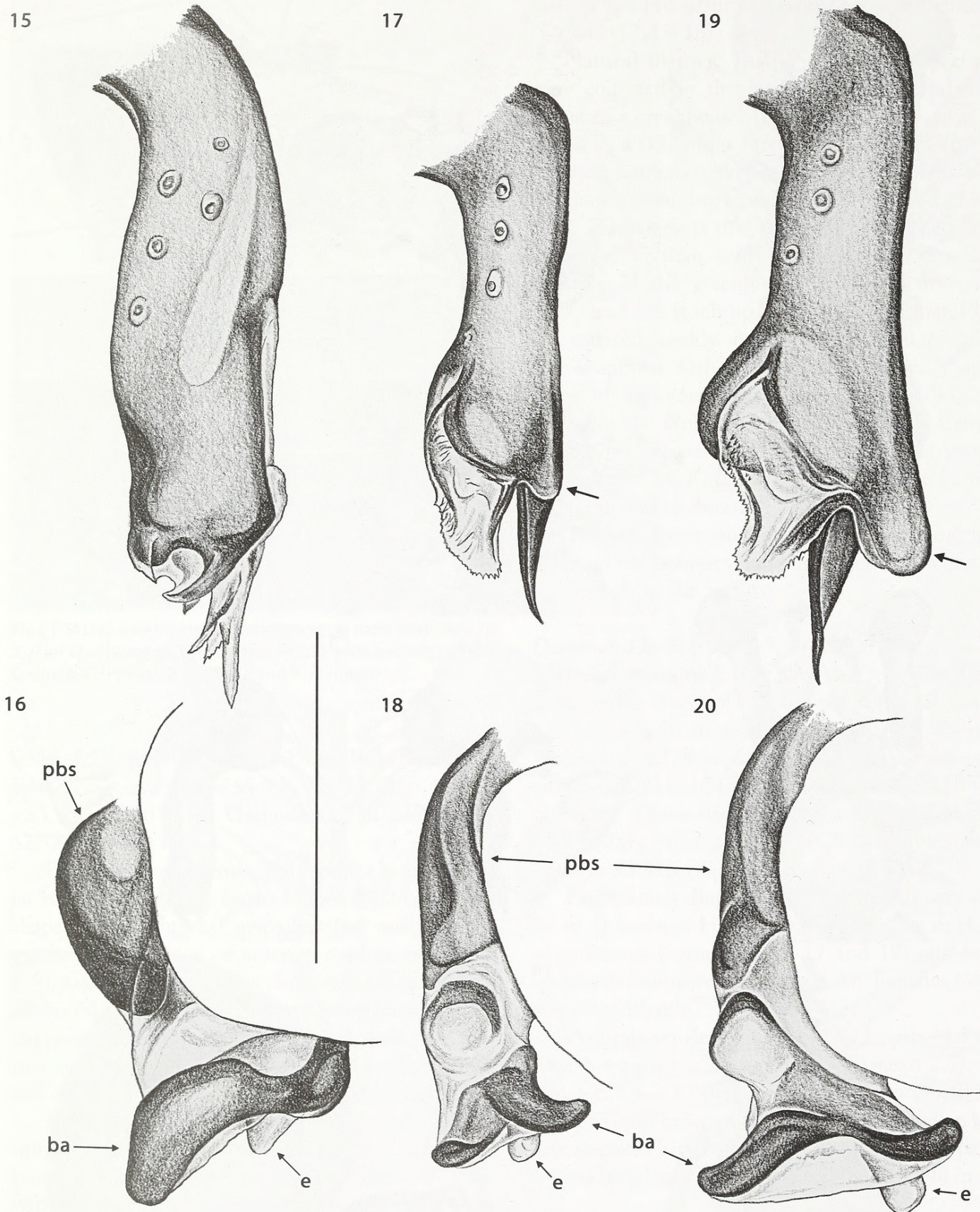
Material examined. GERMANY, Berlin, Landgard Berlin Buchholz (plant market) (52°36.81'N, 13°26.39'E), 50 m a.s.l., 05.01.2015 (N. Reiser, J. Neumann), 3♂2♀ in ZFMK (Ar 12704); same data but 16.03.2015, 1♂1♀ in ZFMK (Ar 12705). Gartencenter Deutscher (plant market) (52°26.46'N, 13°25.44'E), 50 m a.s.l., 17.03.2015 (J. Neumann), 1♂4♀ in ZFMK (Ar 12706).

Preliminary diagnosis. This species is very similar to *Q. mabusai* Huber, 2003, but differs in shapes of procursus (compare Figs 17 and 19) and bulbal apophysis (compare Figs 18 and 20). Females may be indistinguishable.

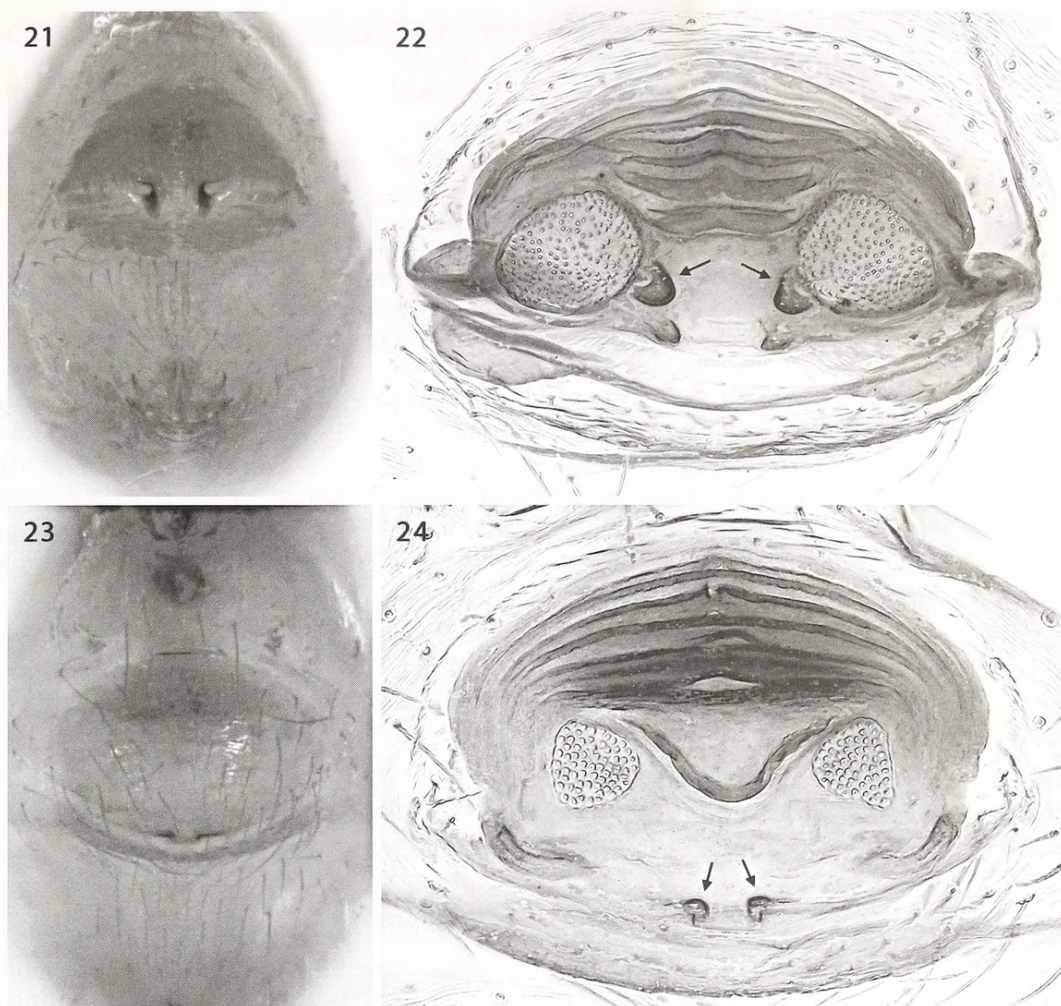
Preliminary description. Body length ~1.5 mm; tibia 1 length in 5 males: 2.3-3.2 (mean 2.7), in 7 females: 1.8-2.1 (mean 1.9). Coloration mostly pale ochre to light brown, with distinct dark median band on carapace (Figs 3-5). Male chelicerae with pair of frontal apophyses as in *Q. mabusai* (cf. fig. 140 in Hu-

Figs 6-14 right: *Quamtana* sp. A from Witzenhausen. **6-7.** Male, dorsal and lateral views; **8-9.** Male and female prosomata, frontal-dorsal and frontal views; **10.** Male prosoma, ventral view; **11-12.** Left male palp, prolateral and retrolateral views; **13-14.** Female, dorsal and lateral views (Photos: S. Rehfeldt)





Figs 15-20: Left procursi (retrolateral views) and left bulbal apophyses (prolateral views); **15-16.** *Quamtana* sp. A; **17-18.** *Q.* sp. B; **19-20.** *Q. mabusai* Huber, 2003. Arrows in Figs 17 and 19 point to distinctive ventral processes. Abbreviations: ba, bulbal apophysis; e, embolus; pbs, proximal bulbal sclerite. Scale line for all images: 0.2 mm



Figs 21-24: Female abdomens, ventral views, and cleared female genitalia, dorsal views. **21-22.** *Quamtana* sp. A; **23-24.** *Q.* sp. B. Arrows point at epigynal pockets.

ber 2003). Male palps also in general as in *Q. mabusai* (cf. figs 138 and 139 in Huber 2003), but procursus and bulbal apophysis different (Figs 17-18).

Natural history. The specimens were found in the edges of u-shaped iron-pillars and under the lips of big flower pots. These pots are apparently rarely moved so that there is a low frequency of disturbance. In March 2015 we observed many more specimens (> 20) than collected. However, only two males were found during that search. In January as well as in March, several females with egg sacs and juveniles were found. This suggests that the species reproduces in the locality. From the high number of specimens seen and from the wide distribution over a large area of the market we conclude that the species has been at the locality for several generations. The temperature of the air and of the iron pillars was about 16 °C, measured with an electric thermometer.

Acknowledgements

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