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NEW RECORD OF *Misumena vatia* (Clerck, 1757) (ARANEAE: THOMISIDAE) IN CERRO PUNTA – CHIRIQUÍ, PANAMÁ

NUEVO REGISTRO DE *Misumena vatia* (Clerck, 1757) (ARANEAE: THOMISIDAE) EN CERRO PUNTA – CHIRIQUÍ, PANAMÁ

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INFORMACIÓN SOBRE EL ARTÍCULO

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ABSTRACT. Crab spiders (Araneae: Thomisidae) are natural predators of insects in areas close to crops, with thrips (Thysanoptera: Thripidae) being important pests for several vegetables. Between September and November 2022, it was observed in both onion plots and daisy flowers in Cerro Punta, Tierras Altas – Chiriquí, Panama (8°51'13" N 82°34'16" W, 1949 m asl), the presence of yellow and white crab spiders; Therefore, the objective was to identify said species. A specimen was collected, which was preserved in 70% ethanol to be checked in the laboratory of the Cerro Punta Experimental Station – Instituto de Innovación Agropecuaria de Panamá and in the G. B. Fairchild Invertebrate Museum – Universidad de Panamá, also consulting literature specialized. The morphological characters observed, mainly the epigynum, are close to the species *Misumena vatia* (Clerck, 1757), this being, as far as is known, a new record for Panama.

KEYWORDS: Crab spiders, daisy flowers, onion, predators, thrips.

RESUMEN. Las arañas cangrejo (Araneae: Thomisidae), son depredadores naturales de insectos en áreas próximas a cultivos, siendo los thrips (Thysanoptera: Thripidae), plagas de importancia para varias hortalizas. Entre septiembre y noviembre de 2022, se observó tanto en parcelas de cebolla como en flores de margaritas en Cerro Punta, Tierras Altas – Chiriquí, Panamá (8°51'13" N 82°34'16" O, 1949 msnm), la presencia de arañas cangrejo de color amarillo y blanco; por lo que el objetivo fue identificar dicha especie. Se colectó un espécimen, el cual fue preservado en etanol al 70% para ser revisado en el laboratorio de la Estación Experimental de Cerro Punta – Instituto de Innovación Agropecuaria de Panamá y en el Museo de Invertebrados G. B. Fairchild – Universidad de Panamá, consultándose además literatura especializada. Los caracteres morfológicos observados, principalmente el epigíneo, se aproximan a la especie *Misumena vatia* (Clerck, 1757), siendo este, hasta donde se conoce, un nuevo registro para Panamá.

PALABRAS CLAVE: Arañas cangrejo, cebolla, depredador, margarita, thrips.

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INTRODUCTION

Crap spiders (Araneae: Araneidae) are predators that can aid as natural biological control agents of pests near to producing areas (Cotes et al., 2018). In onion (*Allium cepa* L.), one of the most important crops in Tierras Altas district – Chiriquí province, Panama, thrips (Figure 1) were identified by farmers as a major pest (Marquínez et al., 2022).

Figure 1. Thrips nymphs in onion crops. Photo: R. Collantes

Between September and November 2022, it was observed in both onion (*Allium cepa* L.) plots and daisy flowers (*Bellis perennis* L.) in Cerro Punta, the presence of yellow and white crab spiders (Figure 2); so, the aim of the study was to identify said species.

Figure 2. Yellow and white crab spiders. Photos: R. Collantes

METODOLOGY

Study Area: The study was conducted in Cerro Punta, Tierras Altas district, Chiriquí province, Panama (8°51'13" N 82°34'16" W, 1949 m asl) (Figure 3). Annual average temperature fluctuates between 8 and 19° C, in rear cases is less than 6° C or more than 21° C; dry season starts on December and ends on April, being October the month with more precipitation (215 mm in average) (Weather Spark, 2024).

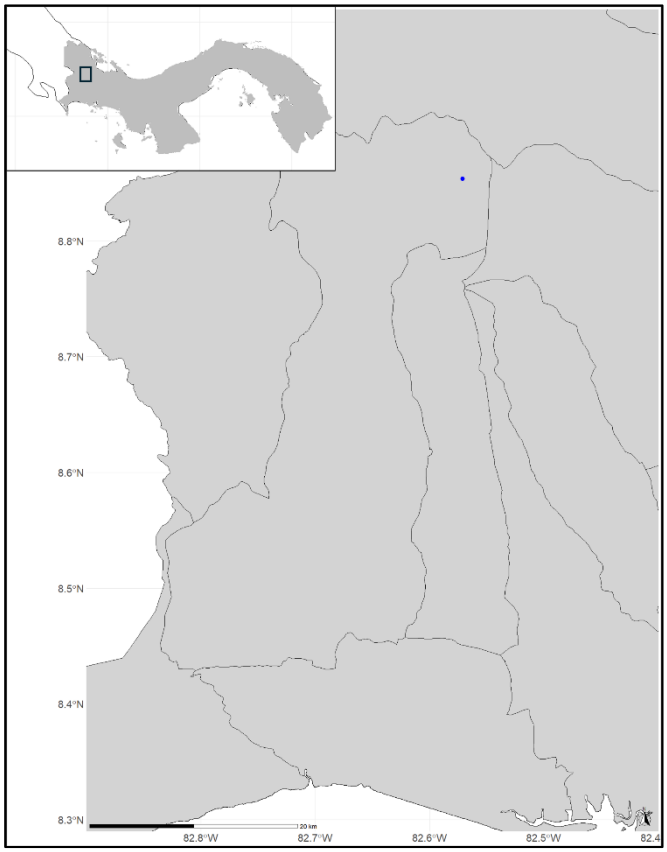

Figure 3. Study area location. Map: D. Díaz

Field and Laboratory Methods

One female specimen was collected, preserved in 70% ethanol and then analyzed in the laboratory of the Cerro Punta Experimental Station – Instituto de Innovación Agropecuaria de Panamá and in the G. B. Fairchild Invertebrate Museum – Universidad de Panamá, where a stereomicroscope Leica S9i and LAS X software were

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used to obtain quality images. The works of Mahmoud (2002), Lehtinen & Marusik (2008), Kim & Lee (2012), Edwards (2017) and Zhang et al. (2022) were checked, comparing morphological characteristics like the habitus, the epigynum, among others (Figure 4).

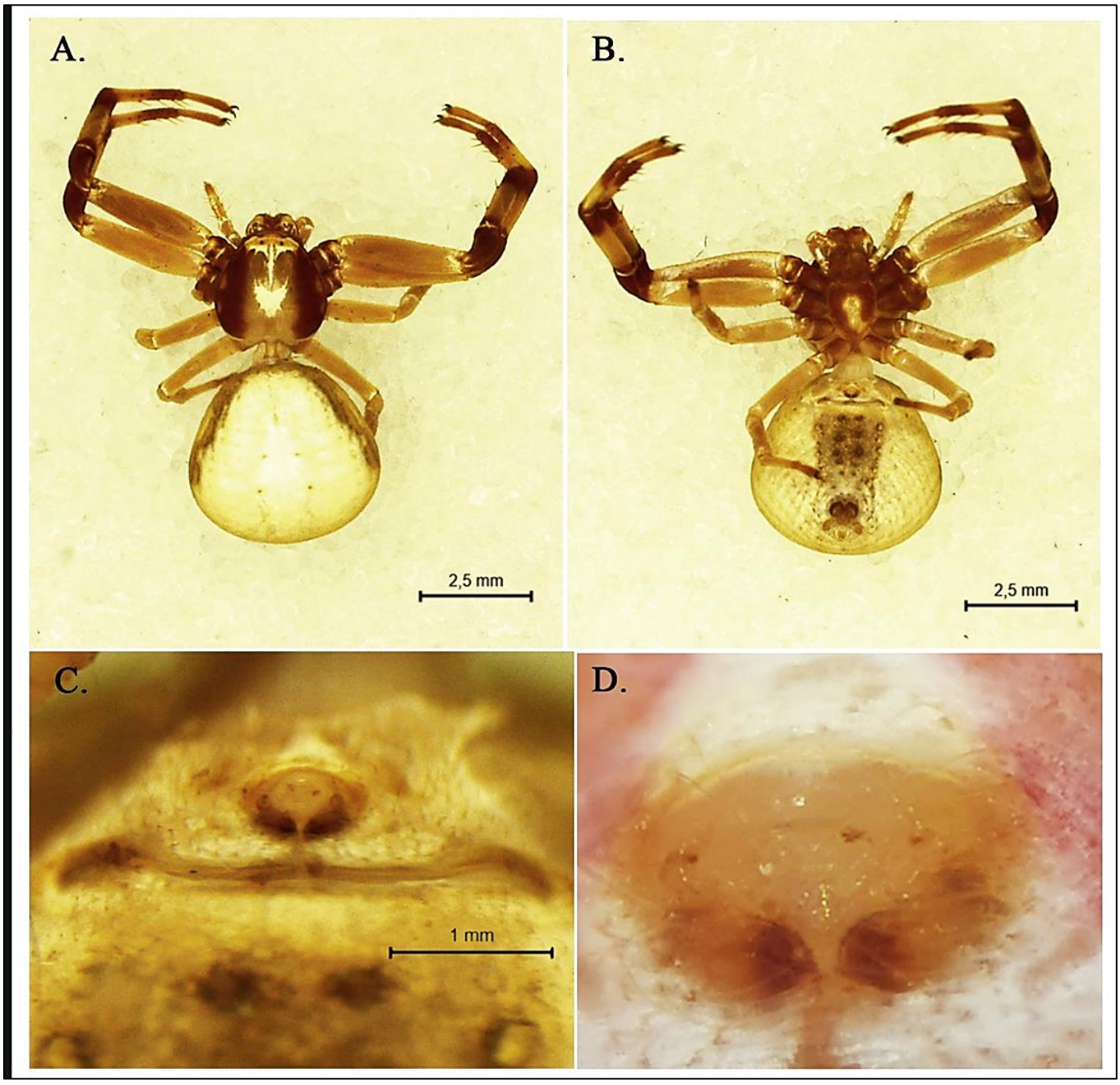

Figure 4. Dorsal (A) and ventral (B) Habitus of *M. vatia*; Epigyneal area (C) and Epigynum (D). Photos: A. Garrido.

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RESULTS

According to the results, the collected specimen is similar to *Misumena vatia* (Clerck, 1757) (Araneae: Thomisidae); However, this spider taxa is very complex to classify, and it is necessary to continue studying morphological characteristics and other means for a more accurate identification (Edwards, 2017).

Pozo (2020), referred that the genus *Misumena* has many tiny spines on a convex carapace, with eyes on the tubercles, the anterior row of eyes is curved and the posterior row is almost straight when viewed from the front; also, these spiders have small chelicerae with hairs on the margins, no teeth, an oval abdomen and two claws on the tarsus; males could have dark brown legs and prosoma and the opisthosoma in females is lighter with a white or sometimes yellow color; the front median eyes are the same distance apart as the rear ones.

DISCUSION

Mahmoud (2002) referred that *M. vatia* is only found in North America and Europe; However, STRI (2024) data base indicates that there is one record from Costa Rica, but there is no record from Panama. So, as far as we know, this could be a new and probably the first record of this species to the country.

Pozo (2020), mentioned sexual dimorphism because *M. vatia* male lengths 3 mm and female up to 8 mm. Also, according to this research, in males the carapace is dark brown to black with a yellowish white median band, the eye region yellowish white, the chelicerae light brown with the base being darker, the dorsum of the abdomen yellowish with a brown tint and the lateral contours dark brown narrow; while, in the case of females, the carapace is light yellowish brown and on it a greenish white median band, the chelicerae that are yellowish white sometimes have brown spots at their base and the sternum is yellow as are the legs.

Females also have two dark and wide longitudinal bands on the dorsum of the abdomen and the epigynum wider than it is long (Pozo, 2020).

CONCLUSION

The morphological characters observed from the female spider collected in Cerro Punta, mainly the epigynum, are close to the species *Misumena vatia* (Clerck, 1757), this being, as far as is known, a new record for Panama. It is also important to remember that these arthropods can help with the biological control of relevant pests like thrips, being natural allies in the productive agroecosystems like Chiriquí highlands; However, it is necessary to continue studying taxonomy and ecology of this and other organisms associated with these livelihoods.

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Conflict of interests
We declare that there is no conflict of interests in this information.