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Two new introduced species of Coccinellidae (Insecta, Coleoptera) detected from Madeira and mainland Portugal

Dos nuevas especies de Coccinellidae (Insecta, Coleoptera) para Madeira y Portugal continental

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ABSTRACT

We report two alien species of Coccinellidae in Portugal. *Cheilomenes sexmaculata* was discovered in Algarve, mainland Portugal. The presence of *Olla v-nigrum* was confirmed in Madeira Island. It is the first and surprising report of *Cheilomenes sexmaculata* in Europe.

Key words: alien species, *Cheilomenes sexmaculata*, Macaronesia, new country record, *Olla v-nigrum*, Portugal.

RESUMEN

Señalamos dos especies foráneas de Coccinellidae en Portugal. *Cheilomenes sexmaculata* se descubrió en Algarve, Portugal continental. La presencia de *Olla v-nigrum* se confirmó en la isla de Madeira. Es el primer registro, sorprendente por otra parte, para *Cheilomenes sexmaculata* en Europa.

Palabras clave: especies foráneas, *Cheilomenes sexmaculata*, *Olla v-nigrum*, Madeira, Portugal continental, nuevas citas.

INTRODUCTION

Coccinellidae have been widely used in biological control since the nineteenth century and many species were introduced from one continent to another (see OBRICKY and KRING (1998) and RONDONI *et al.*, 2020 for reviews). In Europe and the Macaronesian Islands, eleven species can be considered as established (ROY and MIGEON, 2010). The recent invasion of *Harmonia axyridis* (Pallas, 1773) in many countries over the World

(BROWN *et al.*, 2011, LOMBAERT *et al.*, 2011, ROY *et al.*, 2016) and new considerations regarding the introduction of alien species (LOUDA *et al.*, 2003) has slowed down the rhythm of introductions of new species. However, previously introduced species are still expanding their range and alien Coccinellidae have increased their distribution in Europe from 107 to 131 species-country records during the period 2009-2017 (SOARES *et al.*, 2018). *Olla v-nigrum* (Mulsant, 1866) is the twelfth species recorded from Europe and Macaronesia

(SUÁREZ *et al.*, 2018) and its introduction is undocumented.

The recent checklist of Portuguese species of Coccinellidae (SOARES *et al.*, 2021) counts 101 species from mainland and Atlantic Islands of Portugal. Here we report two new species from this country, *Olla v-nigrum* in Madeira and *Cheilomenes sexmaculata* (Fabricius, 1781) in mainland.

MATERIAL AND METHODS

The collects were realized during a field survey in search of Tetranychids mites and were essentially made of opportunistic sampling. Trees and shrubs were beaten on a beating tray and insects collected using a pooter.

Specimens are deposited in the CBGP – Continental Arthropod Collection (CBGP Montferrieux-sur-Lez, FRANCE) and Miguel M. Andrade personal collection.

RESULTS

Olla v-nigrum (Mulsant, 1866)

Olla v-nigrum was detected on Madeira Island, Funchal, Imaculado Coração de Maria, Jardim

Santa Luzia, ex *Abelia x grandiflora*, 32.65447°N, 16.91227°W, 65 m asl, 30-V-2018, 1 adult, Miguel M. Andrade leg., Jaroslav Vetrak det., Jaroslav Vetrak collection; Funchal, Se, 32.64687°N, 16.90764°W, 1 m asl, 11-XI-2021, 1 adult, J. Bento leg., Miguel Andrade Collection; Santana, Arco de São Jorge, Museu do Vinho e da Vinha, 32.82431°N, 16.95375°W, 139 m asl, 19-V-2022, 1 adult from an unidentified tree, A. Migeon leg. (Fig. 1), CBGP – Continental Arthropod Collection. This species is already recorded from Canary Islands (SUÁREZ *et al.*, 2018, ROMANOWSKI *et al.*, 2020b, GBIF 2022a) from the islands of Lanzarote, Gran Canaria and La Gomera. It was reported from Madeira recently (ROMANOWSKI & CERYNGIER, 2022) and our data confirm its establishment on the island. It remains undetected until now in Azores. It is a World spread species (GBIF, 2022a), originating from America where it is encountered from USA to Columbia and from Southern Brazil to Argentina (MICHAUD, 2001, GBIF 2022a). It was introduced in many countries for biological control purposes but established only in tropical areas (Fig. 2). Attempts of introductions were made in Europe (France, former Czechoslovakia) (KREITER, 1985) and in Israel (WISOKI, 1979), but didn't succeed. Its record in Germany (<https://>

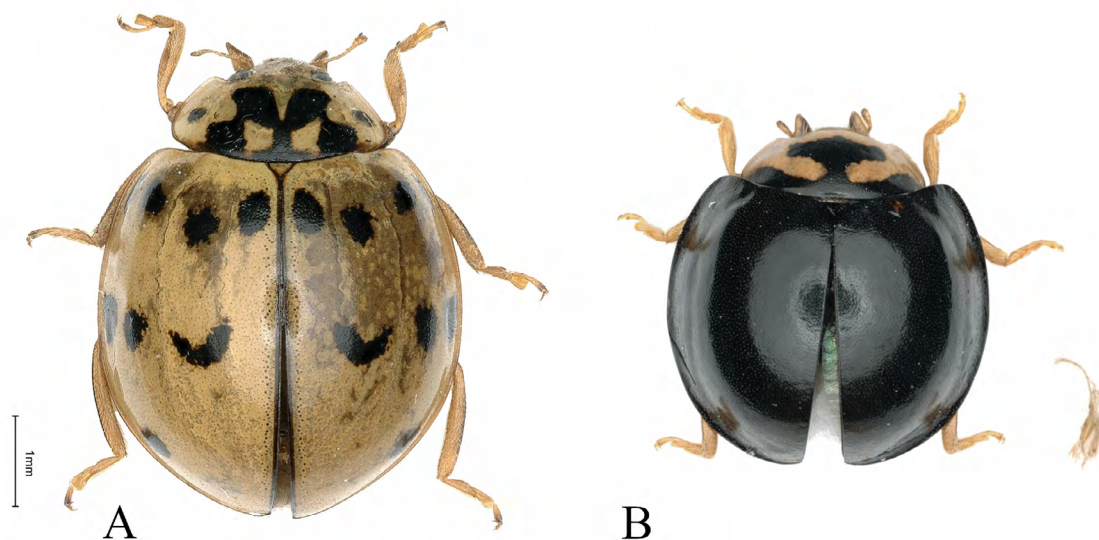


Fig. 1. A: *Olla v-nigrum* (Mulsant, 1866) from Madeira Island; B: *Cheilomenes sexmaculata* (Fabricius, 1781) from Algarve, Portugal. Photos CBGP – Continental Arthropod Collection (2021).

Fig. 1. A: *Olla v-nigrum* (Mulsant, 1866) de la Isla de Madeira; B: *Cheilomenes sexmaculata* (Fabricius, 1781) del Algarve, Portugal. Fotos CBGP - Continental Arthropod Collection (2021).

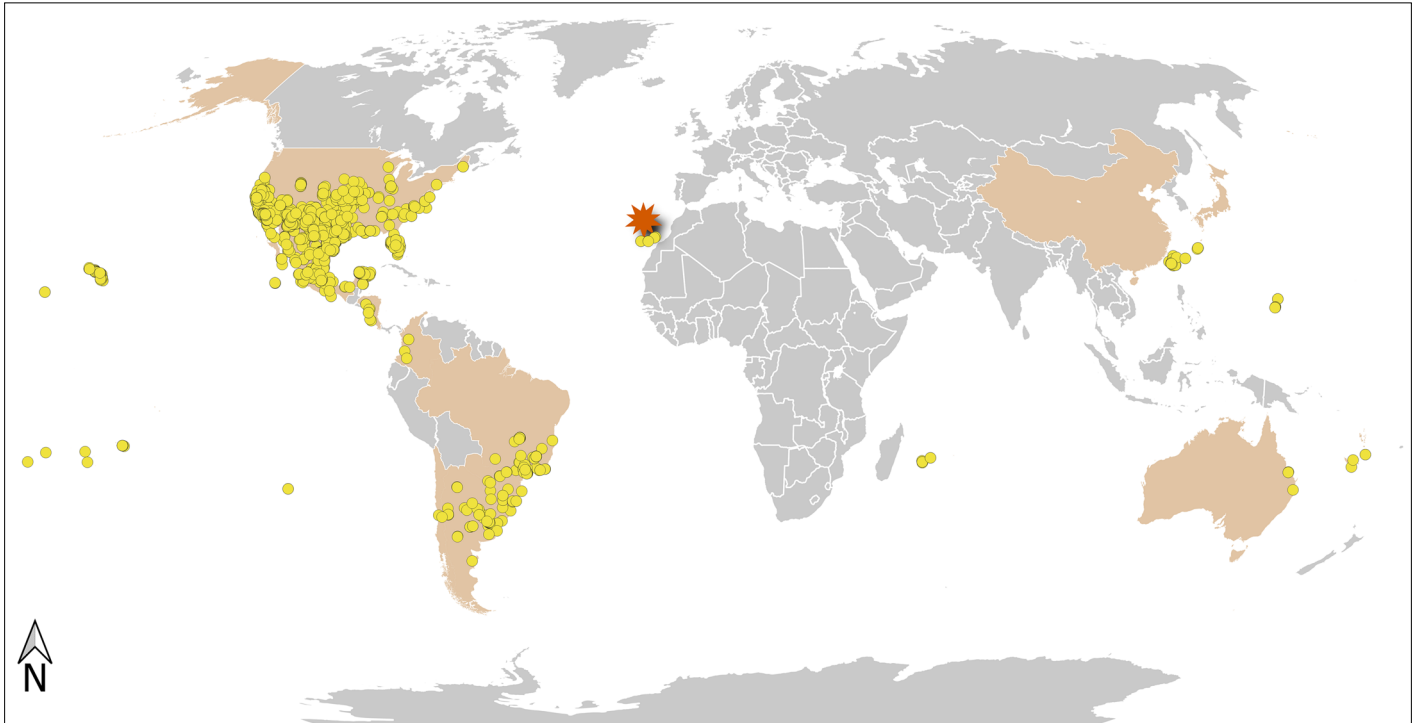


Fig. 2. World distribution of *Olla v-nigrum* (Mulsant, 1866). The star indicates the new record. Source: GBIF, 2022a and new data.

Fig. 2. Distribución mundial de *Olla v-nigrum* (Mulsant, 1866). La estrella indica el nuevo registro. Origen: GBIF, 2022a y nuevos datos.



Fig. 3. *Cheilomenes sexmaculata* (Fabricius, 1781). A: larva, B: nymph, C: adult. Photos A. Migeon.

Fig. 3. *Cheilomenes sexmaculata* (Fabricius, 1781). A: larva, B: ninfa, C: adulto. Fotos A. Migeon.

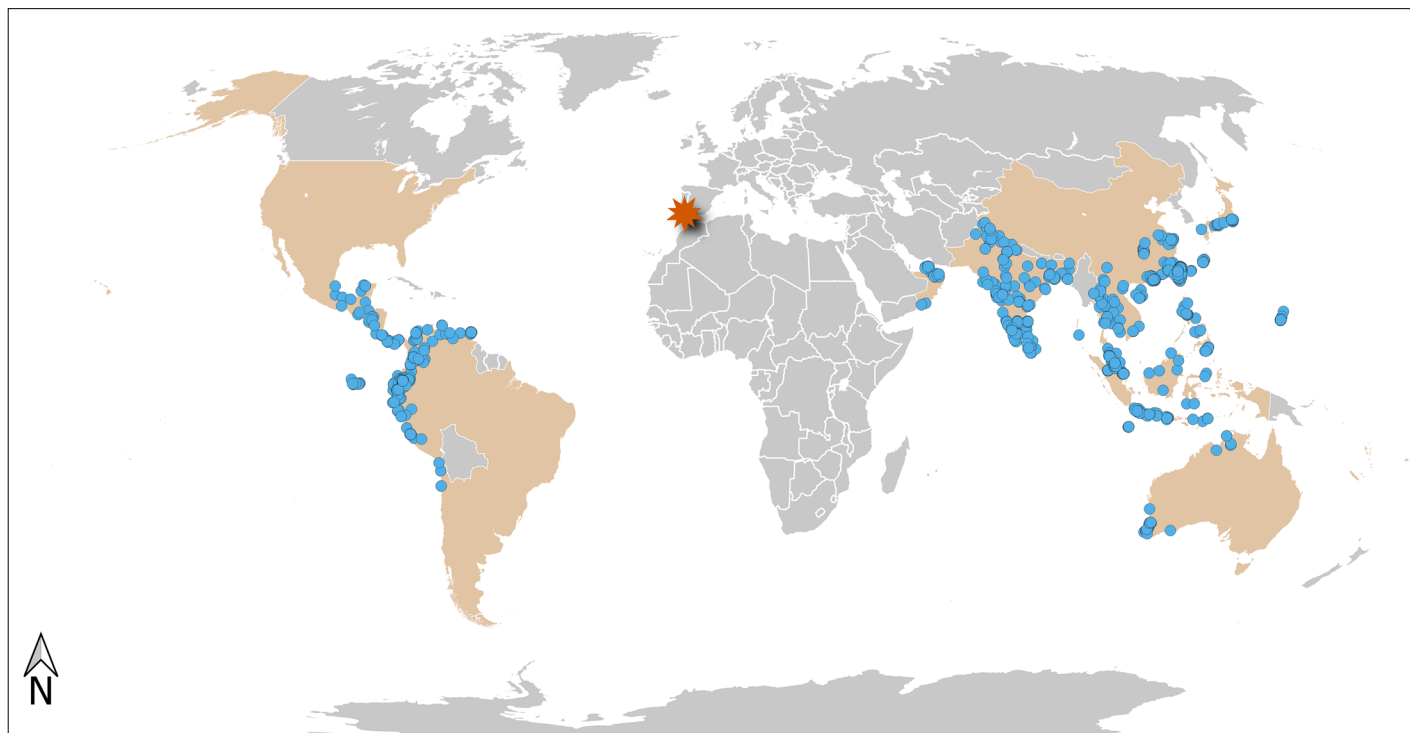


Fig. 4. World distribution of *Cheilomenes sexmaculata* (Fabricius, 1781). The star indicates the new record. Source: GBIF, 2022b and new data.
Fig. 4. Distribución mundial de *Cheilomenes sexmaculata* (Fabricius, 1781). La estrella indica el nuevo registro. Origen: GBIF, 2022b y nuevo dato.

naturgucker.de/?art=-1635105987) is not supported by any document, the photos illustrating the species in the German database were taken in Hawaii. Its introduction in Madeira, nor in Canarias, are documented and then the most likely hypothesis is an unintentional introduction along with infested plants. Its introduction and establishment in Madeira are not surprising given the proximity and rate of exchanges between the two archipelagos.

***Cheilomenes sexmaculata* (Fabricius, 1781)**

Cheilomenes sexmaculata was detected in Portugal mainland, Algarve, Faro, Alcoutim, Tavira, Praça D. A. Padinha, 37.12825°N, 7.64956°W, 5 m asl., 25-V-2022, larvae and adults from *Hibiscus rosa-sinensis* and *Nerium oleander*, A. Migeon leg. The specimens observed (Fig. 1 and Fig. 3) correspond to the *nigra* form (KAWAKAMI *et al.*, 2013) and was confirmed by the examination of the

tegmen (IABLOKOFF-KHNZORIAN, 1982). It is a widely used species for biological control (Fig. 4), originating from South-Western Asia and now present in tropical America (see ROMANOWSKI *et al.*, 2020a for a recent review) and in Australia (ŚLIPIŃSKI *et al.*, 2020). Its record in Germany (<https://naturgucker.de/?art=1414841824>), as for *Olla v-nigrum*, is not supported by any document. This species is unknown from any neighbouring countries and its discovery in mainland Europe constitute an unexpected and surprising fact. Its introduction is not documented and then the most likely hypothesis is an unintentional introduction along with infested plants, as for *Olla v-nigrum*.

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