

Notes and Comments

## ***Chartergellus communis* (Hymenoptera: Vespidae): nesting and nest camouflage in different phytophysiognomies in the states of Bahia and Minas Gerais, Brazil**

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Twelve species have been described for the genus *Chartergellus* (Vespidae: Polistinae: Epiponini) of social wasps in Central and South America (West-Eberhard et al., 2010; Mateus et al., 2015; Carpenter et al., 2019). Pronotum with lateral fovea, sometimes shallow, forewing with prestigma shorter than the pterostigma, head, in dorsal view, without vertical carina, scutellum rounded in profile, mesoepisternum without dorsal sulcus and palpal formula characterize individuals of the genus *Chartergellus* of the tribe Epiponini (Carpenter and Marques, 2001).

Black color, reddish brown mandibles and red clypeus are characteristics that identify *Chartergellus communis* Richards, 1978 (Vespidae: Polistinae: Epiponini) (Richards, 1978). This wasp was collected in areas of Cerrado (Elpino-Campos et al., 2007), Caatinga (Somavilla et al., 2017), Amazon Forest (Gomes et al., 2020) and Atlantic Forest (Souza et al., 2020a).

Nests of *C. communis* are of the calyptodomyc stelocytarus type, generally grayish and made of plant fiber with a color similar to the substrate on which they were built (Wenzel, 1998; Mateus et al., 1999), commonly in Cerrado and Cerradão areas (Richards, 1978). This wasp was reported in Cerrado areas in the “Estação Ecológica do Panga” (Elpino-Campos et al., 2007), in the Pandeiros River Biological Refuge and in the Sempre Vivas National Park (Souza et al., 2020b) in the state of Minas Gerais, Brazil and in arboreal Cerrado in the state of Bahia, Brazil (Santos et al., 2009), but without information on its nesting substrate.

Social wasps play several ecological roles, such as predation, pollination, and are also bioindicators (Brock et al., 2021; Cabral et al., 2022). Information on the nesting of social wasps is extremely relevant, as it allows knowing the biology and nesting habits of these individuals, contributing to their preservation and the areas where they inhabit.

The objective of this study is to report the nesting and nest camouflage of *C. communis* in different

phytophysiognomies in the states of Bahia and Minas Gerais, Brazil.

Nests of *C. communis* were recorded in the Sempre Vivas National Park (43° 46' 37" S; 17° 48' 22" W) in 2018, in the Pandeiros River Biological Refuge (5° 23' 31" S; 44° 53' 43" W) in 2014 in Minas Gerais, Brazil and in the municipality of Angical (12° 0' 25" S 44° 41' 38" W), Bahia state, Brazil from November 2020 to December 2021.

Thirty-one colonies are reported in the present study, twenty-nine in the state of Minas Gerais, where one nest of *C. communis* was recorded in a rocky outcrop, observed in a rocky field in the Sempre Vivas National Park (Figure 1A), ten in the Rio Pandeiros Biological Refuge, eight in anthropized areas (houses and sites) in Cerrado areas, three in public lighting, four in wooden windows, one in a house wall and two in unidentified arboreal substrate (Figure 1B). Nests were located up to 10 to 20 meters from water courses, at heights between 0.5 to 5 meters, ranging from 11.6 cm to 17 cm in length and with a nest opening diameter ranging from 2.4 cm to 7.4 cm, respectively.

Nests of *C. communis* in the municipality of Angical were located lower than 2 meters from the ground on a wooden door (Figure 1C). The first nest was recorded in November 2020 and the second in December 2021 on the same substrate (Figure 1D), but without reusing the first.

The preference of *C. communis* for anthropic substrates protects its nests from abiotic factors, such as rain, wind and heat, increasing the chances of success for the colonies of this wasp (Barbosa et al., 2020), as reported for species of *Mischocyttarus*, *Polistes* and *Polybia* (Oliveira et al., 2017; Silva et al., 2019). This record shows that *C. communis* explores anthropized environments, despite being an uncommon species in faunal inventories (Souza and Prezoto, 2006; Somavilla and Oliveira, 2017), due to its discrete and camouflaged nest behavior, a strategy also observed for other species of unusual wasps (Barbosa et al., 2016; Milani et al., 2020). This information and those reported in Cerrado and Cerradão in the states of Mato Grosso and São

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Received: March 28, 2022 – Accepted: July 18, 2022



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**Figure 1.** *Chartergellus communis* (Hymenoptera: Vespidae) nesting in the Sempre Vivas National Park (A) in the Pandeiros River Refuge, Minas Gerais state (B) and in the municipality of Angical, Bahia state (C, D), Brazil.

Paulo, Brazil (Richards, 1978; Mateus et al., 1999) suggests the plasticity of *C. communis* in using different substrates and, in all reported cases, with similarities between the color of their nest (Figure 1A and D). The choice of nesting sites may be related to the strategy of protecting the colony by camouflage (Chavarría-Pizarro and West-Eberhard, 2010; Souza et al., 2020c). The location of all colonies recorded in the present study of *C. communis* up to 10 to 20 meters from water courses, suggest the importance of this resource for the nesting of this wasp that uses saliva to mix cellulose pulp and also for cooling its colonies, larvae and adults. Nesting near a water source, probably, facilitates the foraging of social wasps in the search of this resource, and its availability and that of food resources are

essential for the successful nesting of these social insects (Santos et al., 2009).

The substrates used by *C. communis* show that this wasp occupy anthropized environments, in addition to natural ecosystems, and its selection of substrates for nesting is related to the camouflage of its nests.

### Acknowledgements

Gabriel Teófilo Guedes da Silva for the support with the photo board. To the Brazilian institutions “Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)”, “Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES Finance Code 001)”, “Fundação de Amparo à Pesquisa do Estado de Minas Gerais (FAPEMIG)”,

“Fundação de Amparo à Pesquisa do Estado do Amazonas (FAPEAM)” and “Programa Cooperativo sobre Proteção Florestal (PROTEF) do Instituto de Pesquisas e Estudos Florestais (IPEF)” for financial support.

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