

# Inventory, colony fluctuation, and wasp nesting social habits in IFSULDEMINAS - Machado Campus

Elenice Aparecida Fortes<sup>1</sup>

Alice dos Reis Fortes<sup>2</sup>

Letícia Cruz de Almeida<sup>3</sup>

Lêda Gonçalves Fernandes<sup>4</sup>

## Abstract

Social wasps offer important ecosystem resources as biological control and pollination. Many species are synanthropic, however, there are still few studies of these insects in anthropized environments. The objective of this study was to verify the richness, colony fluctuation, and preferential substrates for social wasp nesting at IFSULDEMINAS Campus Machado. Four censuses/inventories were carried out from November 2015 to June 2016, and the active collection method with an entomological net was used for wasp collection. The specimens found were assembled, identified, and deposited in the collection of the entomology laboratory of the institution. In total, 20 species of social wasps were registered, from which the genera *Polybia*, *Polistes*, and *Mischocyttarus* showed a greater richness of species. The number of colonies increased from November to March, decreasing in June. *Mischocyttarus cassununga* R. von Ihering (1903) had more abundance of colonies in all months evaluated. Broadly, the genera *Mischocyttarus* and *Polistes* presented nesting preference for the building substrate, while the genus *Polybia* presented preference for the vegetation substrate. Machado Campus has a diversity of environments that contributes to the establishment of social wasp colonies. Therefore, it is essential to disseminate this information and environmental education actions to the community to demonstrate the importance of these insects for the ecosystem and the need for environmental conservation to guarantee their ecosystem services.

**Keywords:** Entomology. Hymenoptera Vespidae. *Mischocyttarus*. Synanthropism.

## Introduction

Social wasps, popularly known as “marimbondos” or “cabas,” are recognized mainly by the presence of their colony, called “caixa” or “enxu,” and by their painful stings (PREZOTO *et al.*, 2007). Such insects belong to the order Hymenoptera, superfamily Vespoidea, family Vespidae and subfamily Polistinae. The Polistinae are cosmopolitan eusocial insects, however, the greatest diversity is found in tropical regions, especially in the neotropical region. This subfamily has 26 genera and 974 species. In Brazil it is represented by 22 genera and more than 300 species, 104 of which are endemic, thus characterizing one of the richest faunas of the subfamily Polistinae in the world

1 Instituto Federal de Educação Ciência e Tecnologia do Sul de Minas Gerais (IFSULDEMINAS) – *Campus* Machado. Discente do curso de Licenciatura em Ciências Biológicas. forteselenice@gmail.com. Rodovia Machado, Paraguaçu, km 3, Bairro Santo Antônio, Machado/MG, 37.750-000.

2 IFSULDEMINAS – *Campus* Machado. Discente do curso de Engenharia Agrônoma. alicelfmachado@gmail.com.

3 IFSULDEMINAS – *Campus* Machado. Discente do curso de Licenciatura em Ciências Biológicas. lehdealmeida@gmail.com.

4 IFSULDEMINAS – *Campus* Machado. Professora Doutora Engenheira Agrônoma. leda.fernandes@ifsuldeminas.edu.br.

(CARPENTER; MARQUES, 2001; PREZOTO; CLEMENTE, 2010; RESENDE *et al.*, 2016). In the state of Minas Gerais, southeastern Brazil, 101 species and 17 genera were registered (SOUZA; FERREIRO; ALBUQUERQUE, 2015).

As eusocial insects, wasps have overlapping generations in the same colony, cooperative care for offspring, and division of tasks. They have two strategies for the foundation of a new nest: independent foundation and swarming foundation. In the first strategy, one or more females start the new colony, which is characterized by its reduced size and few cells. On the other hand, in the swarming foundation, a group of workers and queens start the new colony. Usually, this foundation occurs by the abandonment or division of the old colony, and it is characterized, in turn, by the largest size and largest population (RESENDE *et al.*, 2016).

The wasps have a high degree of synthropism (PREZOTO, 1999), as they have opportunistic species, being able to modify their foraging behavior to take advantage of new and different sources of food resources (RESENDE *et al.*, 2016). However, according to Oliveira, Souza, Pires (2017), and Torres *et al.* (2014), this association with urban environments may be related to the destruction of their natural habitats.

The selection of the nesting site, the orientation and architecture of the colonies are important mechanisms to regulate the microclimate within them and to ensure their success (ROCHA, 2011). In anthropic environments, wasps build their colonies on several substrates, some are more selective, others more generalist (OLIVEIRA; SOUZA; PIRES, 2017); and those that use only human constructions as substrate are more eusinanthropic (LIMA; LIMA; PREZOTO, 2000). In urban environments, the duration of a colony tends to be longer due to benefits such as more protection against weathering, reduced competition, and predation. However, this longevity is directly conditioned to human action (PREZOTO *et al.*, 2007).

Due to their behavior and number of individuals, social wasps have a huge impact on other organisms (RICHTER, 2000), because, as the large predators they are, they guarantee the trophic balance of ecosystems. They are also pollinators of some species and bioindicators of environmental quality (RESENDE *et al.*, 2016; SOMAVILLA; KÖHLER, 2012). They have a foraging habit, that is, they search for resources such as water, food, and materials such as fibers and clay to build their colonies (RESENDE *et al.*, 2016). In adulthood, they feed on carbohydrates found in flowers and fruits and to feed their larvae they hunt prey (CASTRO; GUIMARÃES; PREZOTO, 2011). Water is a resource employed for cooling the colony, being of paramount importance on hotter days (ELISEI *et al.*, 2010).

When searching for pollen, wasps are part of the community of floral visitors, and a portion represents effective pollinators (CLEMENTE *et al.*, 2017; SOMAVILLA; KÖHLER, 2012). Thus, several studies seek to characterize which wasp species are the most frequent floral visitors and associate them as effective pollinators. Sühs *et al.* (2009) collected the *Polistes simillimus* Saussure (1853), *Polybia sericea* Olivier (1791), and *Polybia ignobilis* Haliday (1836) species with a large amount of pollen from *Schinus terebinthifolius* Raddi agglomerated in regions of their exoskeleton. This fact confirmed the importance of those species as pollen transporters and as potential pollinators. Given the importance of social wasps, their conservation becomes significant to maintain the diversity of natural environments (SOMAVILLA; KÖHLER, 2012).

Besides the importance of pollination, social wasps contribute to natural biological control both in urban environments and in agroecosystems due to their habit of preying on other insects (CARPENTER; MARQUES, 2001; PREZOTO *et al.*, 2007; ROCHA, 2011). Among insects predated by wasps, 90% correspond to lepidopteran caterpillars (PREZOTO *et al.*, 2007; RESENDE *et al.*, 2016),

which are considered important pests of several crops (GALLO *et al.*, 2002). This preference for such prey was observed in several studies when analyzing foraged resources, for example, by *Polistes versicolor* Olivier (1791) (PREZOTO; CLEMENTE, 2010), *Polybia occidentalis* Olivier (1791), and *Polybia paulista* Von Ihering (1896) (HERDINA *et al.*, 2016).

Even with all the importance of ecosystem services offered by social wasps, there is still little research on them in urban environments (ALVARENGA *et al.*, 2010; JACQUES *et al.*, 2012, 2015; OLIVEIRA; SOUZA; PIRES, 2017), even in the southeast region, which is the most studied in Brazil (SOUZA; VALE; BARBOSA, 2016). In this way, more studies are needed to better understand this process of association of social wasps with the urban environment, as well as for a better relationship between men and insects (LIMA; LIMA; PREZOTO, 2000; OLIVEIRA *et al.*, 2015; FORTES *et al.*, 2017). Therefore, the objective of this work was to inventory the species of social wasps and verify the number and fluctuation of colonies and preferential substrates used for nesting in the premises of the Federal Institute of Education, Science and Technology of Southern Minas Gerais (IFSULDEMINAS), Machado Campus.

## Materials and methods

The study was conducted at IFSULDEMINAS - Campus Machado, Machado/MG. The municipality has typical vegetation of the seasonal semideciduous forest, Atlantic Forest biome (IBGE, 2012). It is characterized by both the climate of the Cwa type, humid subtropical with dry winter and hot summer (KÖPPEN, 1948) and the average annual temperature and rainfall of 21.2°C and 1,824 mm, respectively (MOURA *et al.*, 2007). For the inventory of the social wasps, we conducted monthly collections in November 2015 and in January, March, and June 2016, totalizing four collections, with a total sampling effort of 96 hours. The active collection method was used to carry out the inventory, defining a route that was repeated monthly.

We examined, in each collection, the constructed areas in the Campus, such as buildings, light posts and garden plants, observing the presence of social wasps and accounting for all colonies along this route. The wasps found in colonies or mid-flight were collected with an entomological net and stored in containers with 70% alcohol. The colonies observed were photographed with a NIKON D3100 digital camera.

The specimens collected were pinned for identification, and are deposited in the collection of the entomology laboratory of the institution. The identification was made through entomological keys (RICHARDS, 1978; CARPENTER; MARQUES, 2001) and from the comparison with the biological collection of social wasps (CBVS) of IFSULDEMINAS - Inconfidentes Campus. The identification of the species was confirmed by Dr. Marcos Magalhães de Souza, from the same institution, and some specimens of the *Mischocyttarus* de Saussure (1853) were sent to Dr. Orlando Tobias Silveira from the Paraense Emílio Goeldi Museum in Belém - Pará.

The types of substrates used by the social wasps were grouped according to Lima, Lima, and Prezoto (2000) in the following categories: construction (walls, cement structures, and tiles); metal structures (air conditioning, gutters, construction iron, nails, screws, and lamp support); synthetic materials (plastics, rubbers, glasses); wood (masonry structures), and vegetation (all plants where nests were found). In addition to the substrate, the height of the colonies in relation to the soil was grouped into three categories: low (up to two meters), medium (from two to five meters) and high (more than five meters). The collected data were tabulated in spreadsheets (Calc - LibreOffice) for evaluation of the species richness, abundance, and fluctuation of the number of colonies over the months studied.

## Results and discussion

In Machado Campus from November 2015 to June 2016, a total richness of 20 species of social wasps distributed in seven genera was registered. This richness represents 11.76 % of the total species registered in the Atlantic Forest, an area considered an important refuge for the conservation of these insects in Brazil (SOUZA *et al.*, 2020). The genus *Polybia* Lepeletier (1836) showed greater species richness (seven), followed by *Mischocyttarus* de Saussure (1853) with five, *Polistes* Latreille (1802) with three, *Agelaia* Lepeletier (1836) with two, and *Apoica* Lepeletier (1836), *Synoeca* de Saussure (1852), and *Brachygastra* Perty (1833) with one species each. Similar results in anthropogenic environments were found by Oliveira, Souza, and Pires (2017), and Jacques *et al.* (2012), who registered a richness of 16 species distributed in 6 genera and 20 species in 9 genera, respectively.

Among the inventoried species, *Agelaia vicina* de Saussure (1854), *Brachygastra lecheguana* Latreille (1824), *Polybia sericea* Olivier (1791), and *Polybia ignobilis* Haliday (1836) were collected in mid-flight, but their colonies were not located. The presence of *P. ignobilis* flying over garbage containers was remarkable, while *A. vicina*, *B. lecheguana*, and *P. sericea* were found near the vegetation. Overall, the nest of these species are not found in anthropogenic areas (JACQUES *et al.*, 2015; SOUZA, 2010).

We registered colonies of 16 species and, of the total colonies observed, 80.90 % belong to the genus *Mischocyttarus*, of which 94.15 % refer to the species *M. cassununga* (TABLE 1). The high abundance of this species may be related to the small size of its colonies and their low aggressiveness (CASTRO, 2010; CASTRO *et al.* 2014), thus not representing a threat to human eyes, which decreases the risk of anthropogenic depredation.

**Table 1** – Number of colonies of social wasp species (Hymenoptera Vespidae) found in IFSULDEMINAS - Machado Campus from November 2015 to June 2016. Machado-MG.

Species	Number of colonies					Abundance (%)
	Nov	Jan	Mar	Jun	Total	
<i>Mischocyttarus cassununga</i> R. von Ihering (1903)	401	793	735	422	2.351	76.21
<i>Polistes</i> *	12	15	81	76	184	5.96
<i>Polistes versicolor</i> Olivier (1791)	19	54	19	61	153	4.96
<i>Polistes simillimus</i> Zikán (1951)	8	33	36	7	84	2.72
<i>Polistes ferreri</i> Saussure (1853)	11	19	20	7	57	1.85
<i>Mischocyttarus rotundicollis</i> Cameron (1912)	7	13	26	4	50	1.62
<i>Mischocyttarus</i> *	0	14	23	8	45	1.46
<i>Mischocyttarus drewseni</i> de Saussure (1954)	6	4	17	11	38	1.23
<i>Polybia</i> *	9	9	11	4	32	1.04
<i>Polybia platycephala slyventris</i> Richards (1978)	5	8	8	8	29	0.94
<i>Polybia scutellaris</i> White (1841)	2	2	9	6	19	0.62
<i>Polybia fastidiosuscula</i> Saussure (1854)	4	6	5	0	15	0.49
<i>Mischocyttarus paraguayensis</i> Zikán (1935)	1	3	7	1	12	0.39
<i>Polybia paulista</i> Von Ihering (1896)	1	3	1	2	7	0.23
<i>Synoeca cyanea</i> Fabricius (1775)	0	0	0	5	4	0.13

(continue...)

**Table 1** – Continuation.

Species	Number of colonies					Abundance (%)
	Nov	Jan	Mar	Jun	Total	
<i>Agelaia multipicta multipicta</i> Haliday (1836)	0	0	0	1	1	0.03
<i>Apoica gelida</i> Van der Vecht (1972)	0	0	0	1	1	0.03
<i>Mischocyttarus parallellogrammus</i> Zikán (1935)	1	0	0	0	1	0.03
<i>Polybia bifasciata</i> Saussure (1854)	0	0	0	1	1	0.03
Total	486	976	998	625	3.085	

\* It was not possible to collect individuals from these colonies, as they were in a place of difficult access. However, considering the pattern of their architecture, they could be identified at the genus level.

**Source:** Elaborated by the authors (2020).

The second most representative genus in the number of colonies was *Polystes* (15.49 %) (TABLE 1). According to Prezoto *et al.* (2007), wasps of this genus feed on insects such as defoliating caterpillars and aphids, commonly found in gardens and crops, typical environments on Machado Campus that may be providing the abundance of colonies of this species.

The significant number of colonies in anthropogenic areas demonstrates that these sites have favorable conditions for the establishment of social wasps (FERREIRA; SINZATO, 2007). In turn, Machado Campus has a diversity of environments, such as constructions, gardens, agricultural production areas, and forest fragments. Alvarenga *et al.* (2010), Bueno, Souza, and Clemente (2019), and Jacques *et al.* (2012, 2015) described that environmental heterogeneity, as well as the presence of green areas, are fundamental to the occurrence and abundance of social wasps.

In neotropical regions, where climatic seasons are not well defined, the foundation of new colonies is asynchronous, so it can occur at any time of the year (ROCHA, 2011). During the four months of collection, a monthly average of 771.25 social wasp colonies was observed. As for the genera *Mischocyttarus*, *Polystes* and *Polybia*, there was an increased number of colonies from November to March, decreasing in June (TABLE 1). A greater abundance of social wasps in warmer and rainier periods was also observed by Alvarenga (2012) and Souza *et al.* (2012). This happens because the seasonality of climatic factors influences wasp foraging activities (PREZOTO *et al.*, 2007), and the rainy season is more favorable because there is greater availability of food resources (CASTRO *et al.*, 2014).

In addition to environmental factors, anthropic depredation directly influences the reduction in the number of larger colonies, such as the genus *Polybia*, because the size of the colony is related to the danger level of the species (LIMA; LIMA; PREZOTO, 2000), a fact also observed in this study (FIGURE 1j-l). Rocha (2011) found that 60 % of the abandonment of colonies of the *Polybia platycephala slyventris* Richards (1978) species occurred due to anthropogenic action, especially in the period of intensification of civil works.

The chosen substrate for nesting also interferes with colony success (CASTRO *et al.*, 2014; TORRES *et al.*, 2014). In Machado Campus, the independent foundation genera, *Mischocyttarus* and *Polistes*, which presented the greatest abundance of colonies, had a preference for nesting on artificial substrates (constructions, metal structures, wood, and synthetic material) to the detriment of vegetation substrate (TABLE 2, FIGURE 2a-d, f-j, I, FIGURE 3), which was also found by Lima, Lima, and Prezoto (2000). These substrates offer more protection against climatic variations when compared to herbaceous plants, and those that have small and deciduous leaves (CASTRO *et al.*, 2014).

Besides protection against weather conditions, nesting in human housing reduces interspecific competition and predation (TORRES *et al.*, 2014).

**Figure 1** – Wasp colonies of the genus *Polybia* and substrates used, found in IFSULDEMINAS - Machado Campus from November 2015 to June 2016.



Legend. A-C: *Polybia platycephala slyventris* Richards (1978), D-E: *Polybia paulista* Von Ihering (1896), F: *Polybia* sp., G: *Polybia scutellaris* White (1841), H-I: *Polybia fastidiosuscula* Saussure (1854), J-L: Depredation of *P. scutellaris* (J-K) and *P. fastidiosuscula* (L) colonies.

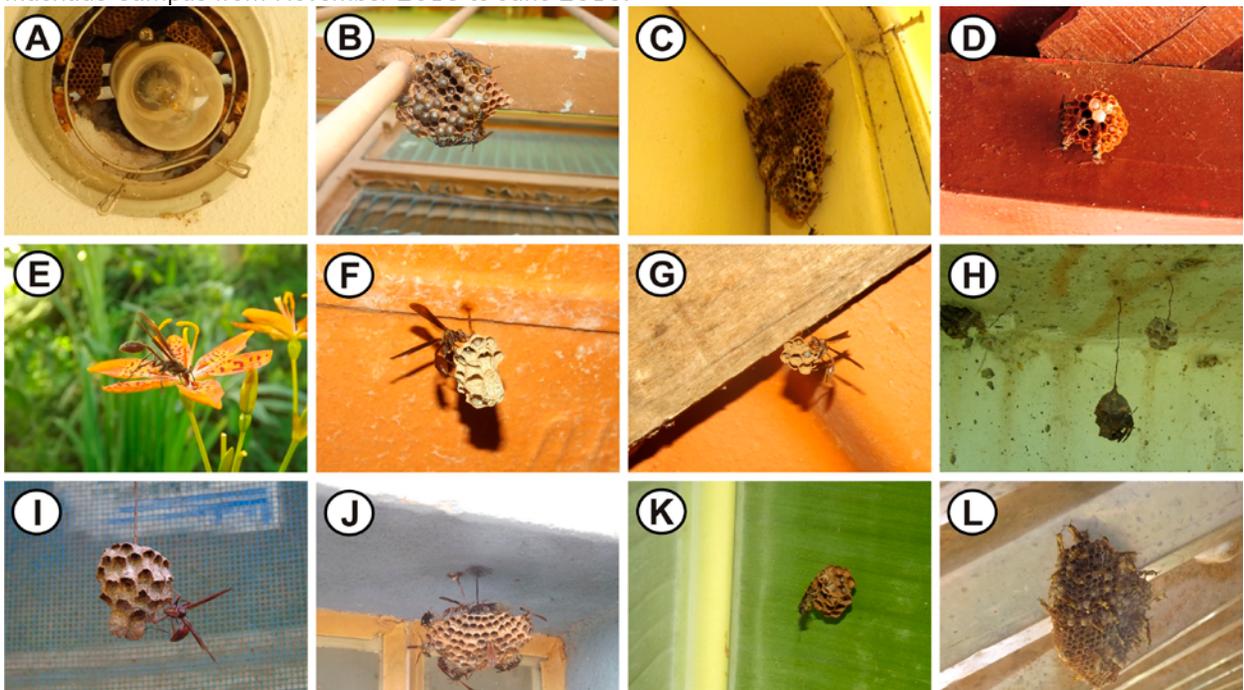
**Source:** Elaborated by the authors (2020).

**Table 2** – Categories of substrates used for nesting by the social wasp genera found in IFSULDEMINAS - Machado Campus, from November 2015 to June 2016. Machado-MG.

Genera	Percentage of colonies				
	Construction	Metal structures	Synthetic materials	Wood	Vegetation
<i>Agelaiia</i>	0.00	0.00	0.00	0.00	100.00
<i>Apoica</i>	100.00	0.00	0.00	0.00	0.00
<i>Mischocyttarus</i>	46.57	22.01	9.53	20.69	1.19
<i>Polistes</i>	25.00	16.10	5.08	53.39	0.42
<i>Polybia</i>	22.55	26.47	0.98	20.59	29.41
<i>Synoeca</i>	0.00	0.00	0.00	0.00	100.00

**Source:** Elaborated by the authors (2020).

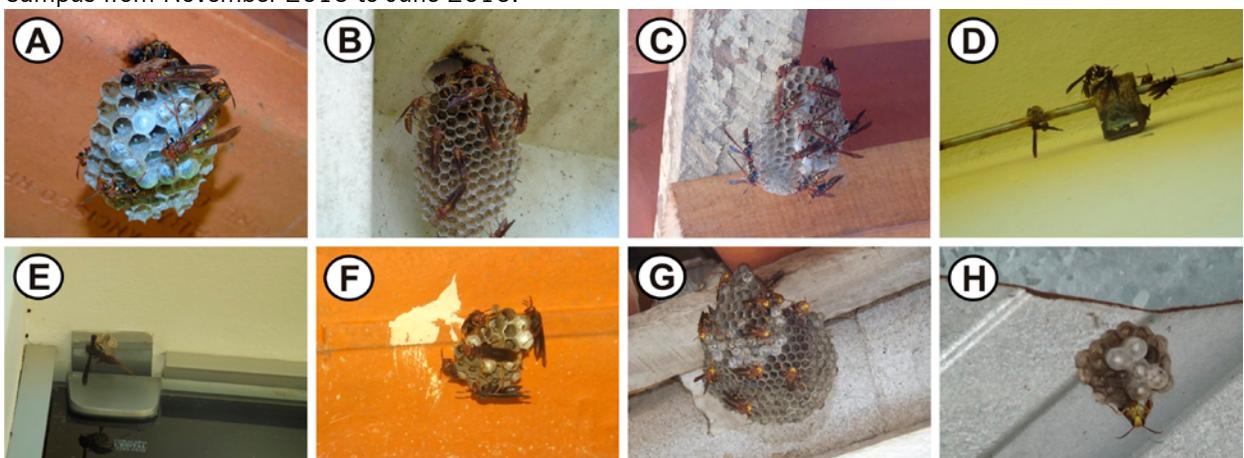
**Figure 2** – Wasps colonies of the genus *Mischocyttarus* and substrates used, found in IFSULDEMINAS - Machado Campus from November 2015 to June 2016.



Legend. A-D: *Mischocyttarus cassununga* R. von Ihering (1903), E-G: *Mischocyttarus drewseni* de Saussure (1054), H-J: *Mischocyttarus rotundicollis* Cameron (1912), K: *Mischocyttarus parallelogrammus* Zikán (1935), L: *Mischocyttarus paraguayensis* Zikán (1935).

**Source:** Elaborated by the authors (2020).

**Figure 3** – Wasps colonies of the genus *Polistes* and substrates used, found in IFSULDEMINAS - Machado Campus from November 2015 to June 2016.



Legend. A-C: *Polistes versicolor* Olivier (1791), D-F: *Polistes ferreri* Saussure (1853), G-H: *Polistes simillimus* Zikán (1951).

**Source:** Elaborated by the authors (2020).

Among the *Polistes* species, we observed that *Polistes ferreri* Saussure (1853) preferred metal structures (77 %), and most of its colonies were found near the air conditioners installed in the buildings surveyed (FIGURE 3d, e), where the wasps were spotted foraging probably by the water released by the

equipment. In dry and cold seasons, this resource is a determining factor for the survival of individuals due to the decrease in food resources (ELPINO-CAMPOS; DEL-CLARO; PREZOTO, 2007).

In addition to the substrate, the height of the colonies is crucial to their success, especially for those independent foundation species that have few individuals per colony (PREZOTO; CLEMENTE, 2010). In the present work all species of the genus *Polistes* and the *Mischocyttarus cassununga* R. von Ihering, (1903) species built their colonies between two and five meters from the ground (79 % and 70 %, respectively). These species have a preference for nesting in human housing, and the height of colonies is equivalent to that of windows and roofs, making them more discreet for human perception, which is possibly a strategy against depredation (ALVARENGA *et al.*, 2010; FERREIRA; SINZATO, 2007; ALVARENGA, 2012; CASTRO *et al.*, 2014) (FIGURE 2 a-d,f-h,j,l). Unlike *M. cassununga*, colonies of the *Mischocyttarus drewseni* de Saussure (1954) and *Mischocyttarus rotundicollis* Cameron (1912) species were found preferentially in the low height category (54 % and 59 %, respectively), but were generally in more protected locations and with the lower flow of people.

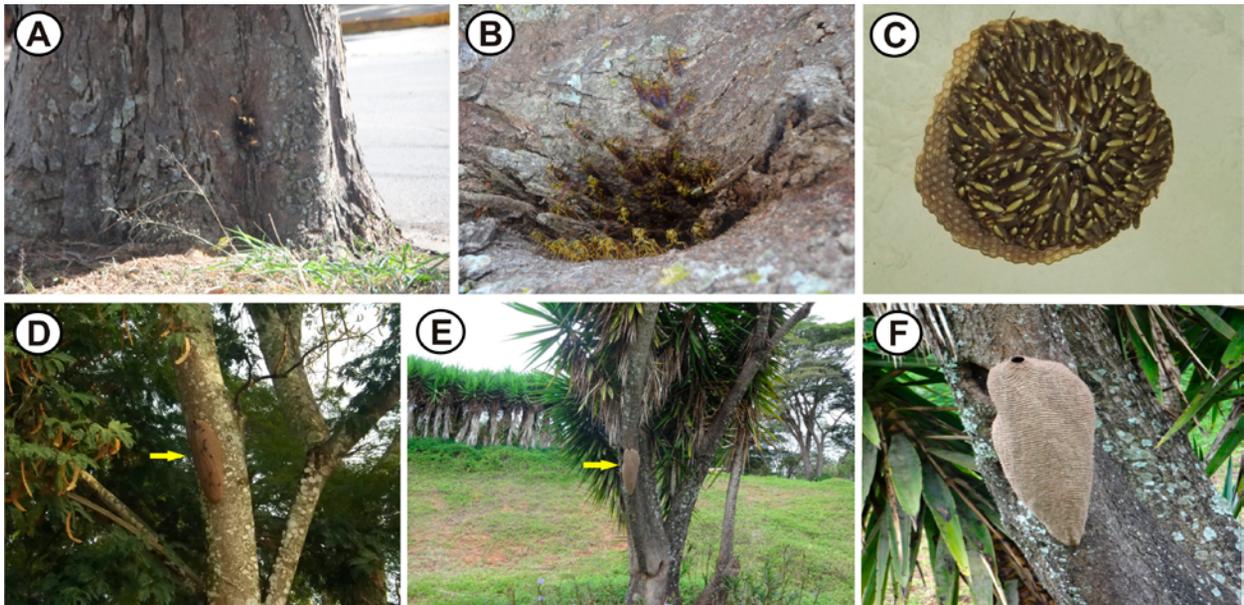
Similarly to *Polistes* and *M. cassununga*, the genus *Polybia* presented a preference for nesting in the average height category (70 %), but the preferred substrate for nesting was in plants (TABLE 2 and FIGURE 1a-c,f,h,i,l). Among the species, *P. platycephala slyventris* was found mainly in the adaxial part of the palm tree *Livistona chinensis* (Jack.) R. Br. ex. Mart (FIGURE 1b). This palm tree is abundant in urban gardens and it has considerable height and broad leaves, which provides shelter and protection to social wasps against adverse weather conditions (ALVARENGA *et al.*, 2010; ALVARENGA, 2012).

Besides *L. chinensis*, species of the genus *Polybia* have also been found in other plants. *Polybia bifasciata* Saussure (1854) was found only once in *Coffea arabica* L.; *P. platycephala slyventris* was found in *Yucca elephantipes* Regel (FIGURE 1a) and in *Dypsis lutescens* (H.Wendl.) Beent. & J.Dransf. (FIGURE 1c); *Polybia* sp. was found in *Bambusa* sp. (FIGURE 1f) and in *Magnolia champaca* (L.) Baill. ex Pierre; *Polybia fastidiosuscula* Saussure (1854) was found in *Caesalpinia pluviosa* DC. (FIGURE 1h); and *P. platycephala slyventris* and *P. fastidiosuscula* were found in *Musa* sp. (FIGURE 1l). Rodríguez *et al.* (2012) also recorded *P. platycephala slyventris* in *Musa* sp. leaf and cited that this species can contribute to the biological control of pest caterpillars of this plant.

The genus *Synoeca* presented only one species, *Synoeca cyanea* Fabricius, (1775) and all colonies were registered only in June (TABLE 1). According to Elisei *et al.* (2005), this species prefers foraging throughout the day under high temperatures and low humidity, typical conditions of drier seasons. Padua *et al.* (2017) reported that in those seasons, people tend to view colonies of social wasps more easily due to the deciduousness of the trees.

Colonies of *S. cyanea* were registered only in the vegetation substrate, in the shrub *Y. elephantipes* (FIGURE 4e, f) and trees of the family Leguminosae as *Anadenanthera* sp. (FIGURE 4d) and *C. pluviosa*. Regarding height, in the bushes, the colony was found in the low category, and upon the trees in the high category. Oliveira, Souza, and Pires (2017) also observed this species with nesting restricted to vegetation and explained that it occurs due to the type of colony. Also, nesting of *S. cyanea* in *Anadenanthera* sp. may facilitate thermal regulation of the colony during winter, since they are deciduous plants and allow more exposure to sunlight (SOUZA, 2010).

**Figure 4** – Wasps colonies of the genera *Agelaia*, *Apoica* and *Synoeca* and substrates used, found in IFSULDEMINAS - Machado Campus from November 2015 to June 2016.



Legend. A-B: *Agelaia multipicta multipicta* Haliday (1836), C: *Apoica gelida* Van der Vecht (1972), D-F: *Synoeca cyanea* Fabricius (1775).

**Source:** Elaborated by the authors (2020).

Like *Synoeca*, the genus *Apoica* presented only one species, *Apoica gelida* Van der Vecht (1972), being found only one colony in the substrate construction at an average height category (FIGURE 4c). Species of this genus are characterized by nocturnal habits (CARPENTER; MARQUES, 2001), therefore it is more difficult to collect them during the day (JACQUES *et al.*, 2015).

Two species of the genus *Agelaia*, *A. vicina* and *Agelaia multipicta multipicta* Haliday (1836) were registered. Species of this genus are characterized by nesting in soil cavities and tree trunks (SOMAVILLA; OLIVEIRA; SILVEIRA, 2012). In this study, the *A. multipicta multipicta* colony was found at the base of the *C. pluviosa* trunk (FIGURE 4a, b). Although the *A. vicina* colony was not found, it was the most abundant among the species captured in attractive traps in the vegetable garden of Machado Campus (FORTES; FORTES; FERNANDES, 2018).

The richness and abundance of social wasp colonies found in IFSULDEMINAS - Machado Campus show that these insects are part of the daily lives of the people. However, the occurrence of many species in anthropogenic environments is threatened due to human depredation of colonies, mainly by the indiscriminate use of insecticides (SILVA FILHO; CASINO, 2004). Thus, environmental education is essential to inform about the ecosystem's importance of social wasps and to promote their conservation (PÁDUA *et al.*, 2017; OLIVEIRA *et al.*, 2015; SOUZA, 2010).

## Conclusion

IFSULDEMINAS - Machado Campus has a diversity of environments that contributes to the settling of colonies of social wasps. Over the months studied, we observed a decrease in the number of colonies from the rainy to the dry season. The genus *Polybia* had more richness of species, but the genus *Mischocyttarus*, especially the species *Mischocyttarus cassununga*, had more abundance

of colonies in all months evaluated, which owes to their preference for human-housing nesting and their low aggressiveness. Given the synthropy of social wasps, it is essential that the community, which has direct contact with the insects, knows their importance and preserve them. Therefore, environmental education actions are necessary to both disseminate such information and teach the correct management of the colonies.

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## Inventário, flutuação das colônias e hábitos de nidificação de vespas sociais no IFSULDEMINAS - *Campus* Machado

### Resumo

As vespas sociais oferecem importantes recursos ecossistêmicos como controle biológico e polinização. Muitas espécies são sinantrópicas, no entanto, ainda há poucos estudos sobre esses insetos em ambientes antropizados. Objetivou-se com este trabalho verificar a riqueza, a flutuação das colônias e os substratos preferenciais para nidificação de vespas sociais no IFSULDEMINAS *Campus* Machado. Foram realizados quatro censos/inventários no período de novembro de 2015 a junho de 2016; para a coleta de vespas, utilizou-se do método de coleta ativa com rede entomológica. Os espécimes encontrados foram montados, identificados e depositados na coleção do Laboratório de Entomologia da instituição. No total foram registradas 20 espécies de vespas sociais, os gêneros *Polybia*, *Polistes* e *Mischocyttarus* apresentaram maior riqueza de espécies. Houve um aumento no número de colônias do mês de novembro a março e um decréscimo em junho. *Mischocyttarus cassununga* R. von Ihering (1903) apresentou maior abundância de colônias em todos os meses avaliados. De modo geral, os gêneros *Mischocyttarus* e *Polistes* apresentaram preferência de nidificação pelo substrato construção, enquanto o gênero *Polybia* apresentou preferência pelo substrato vegetação. O *Campus* Machado possui uma diversidade de ambientes que contribui para o estabelecimento de colônias de vespas sociais. Logo, é imprescindível a divulgação dessas informações para a comunidade, além de ações de educação ambiental que demonstrem a importância desses insetos para o ecossistema e a necessidade da conservação ambiental para garantia dos seus serviços ecossistêmicos.

**Palavras-chave:** Entomologia. Hymenoptera Vespidae. *Mischocyttarus*. Sinantropismo.

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