Original Article

Understanding the habitat selection and natural history of the spider *Deinopis* cf. *cylindracea* (Deinopidae)

Compreendendo a seleção de habitat e a história natural da aranha *Deinopis* cf. *cylindracea* (Deinopidae)

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Abstract

Habitat choice is fundamental for an animal foraging, defense, and reproduction. Ogre-faced spiders are known for their unusual morphology, natural history, and rarity. They are sit-and-wait predators that build net-like webs that are manipulated by spiders and thrown at their prey. Hunting behavior includes selecting microhabitats for web construction that reduces the likelihood of damage or entanglement in the substrate during prey capture. Therefore, we expect that *Deinopis* cf. *cylindracea* selects smooth surfaces to forage on. We observed *D.* cf. *cylindracea* associated with smooth trunks of *Plinia cauliflora* (Myrtaceae) in the natural environment and actively selecting smooth trunks over rough trunks or litter in controlled experiments. Such selection is likely to maximize the foraging strategy of launching the web towards the substrate. Aggregations had occurred more often in the 50 cm trunk closest to the ground, where the prey community is largest. During the day, this spider appears to choose sites where it can adopt a stick-like posture upon the vegetation near the ground. Hunting at night and resting cryptically during the day appears to be shaped by natural selection for the survival and reproduction of this spider species.

Keywords: Atlantic Forest, camouflage, vertical stratification, *Plinia cauliflora*.

Resumo

A escolha do habitat é fundamental para a busca de alimento, defesa e reprodução de um animal. As aranhas ogro são conhecidas por sua morfologia incomum, história natural e raridade. Elas são predadoras que ficam sentadas e esperam, construindo teias semelhantes a redes que são manipuladas por aranhas e lançadas em suas presas. O comportamento de caça inclui selecionar microhabitats para construção de teias que reduz a probabilidade de danos ou emaranhamento no substrato durante a captura da presa. Portanto, esperamos que *Deinopis* cf. *cylindracea* selecione superfícies lisas para forragear. Observamos *D.* cf. *cylindracea* associada a troncos lisos de *Plinia cauliflora* (Myrtaceae) no ambiente natural e selecionando ativamente troncos lisos em vez de troncos ásperos ou serapilheira em experimentos controlados. Essa seleção provavelmente maximiza a estratégia de forrageamento de lançar a teia em direção ao substrato. As agregações das aranhas ocorreram com mais frequência no tronco de 50 cm mais próximo do solo, onde a comunidade de presas é maior. Durante o dia, essa aranha parece escolher locais onde pode adotar uma postura semelhante a um graveto sobre a vegetação perto do chão. Caçar à noite e descansar enigmaticamente durante o dia parece ser moldado pela seleção natural para a sobrevivência e reprodução dessa espécie de aranha.

Palavras-chave: Mata Atlântica, camuflagem, estratificação vertical, *Plinia cauliflora*.

1. Introduction

Habitat selection is crucial for both animal survival and reproduction (Pianka, 1994; Alho et al. 2011; Menq and Anjos, 2015). Optimal foraging theory predicts the selection of favorable habitats to increase foraging success and reduce predation risk (Morse, 1982; Scharf et al., 2011). Among spiders, aspects such as courtship and copulation behavior, defense and foraging are shaped by the selection of specific sites (Figueira and Vasconcellos-Neto, 1993; Vasconcellos-Neto et al., 2017). Thus, a substrate to build its web or refuge is not a random decision. For example, *Eustala perfida* (Araneidae) lives preferentially on rough tree trunks with concavities and covered by lichen and mosses (Messas et al., 2014), *Selenops cocheleti* (Selenopidae) on exfoliating barks (Villanueva-Bonilla et al., 2017), *Craspedisia*

cornuta (Theridiidae) prefer plants with protrusions and spines (Brescovit et al., 2020), and *Drapetisca alteranda* Chamberlin 1909 (Linyphiidae) lives on low strata of smooth bark tree species (Draney et al., 2020). In this sense, the habitat choice can be studied from several aspects, including vertical stratification.

Habitat selection by spiders based on vegetation stratification was first evaluated by Greenstone (1984). In this study, it was suggested that the availability of suitable substrates is more important for habitat choice by spiders than prey availability. Additionally, if a site is highly productive in terms of potential prey, then prey availability is less important in microhabitat selection. Another factor that may affect vertical distribution patterns in tree-dwelling spiders is that different instars occupy different height strata. The vertical distribution pattern of a ctenid species, *Cupiennius coccineus* FOP-Cambridge, 1901, changes throughout the spider's development (Lapinski and Tschapka, 2018). According to the authors, younger spiders preferentially live on higher plant substrates, which reduces the likelihood of cannibalism and competition for resources among spiders. In two other studies carried out in the Neotropics, colonial species such as the tetragnathid *Leucauge* sp. (Salomon et al., 2010) and the araneid *Metepeira incrassata* F. O. Pickard-Cambridge, 1903 (Rayor and Uetz, 1990) also exhibited vertical stratification. Adult females of the former species occupy the upper part of the web and immatures the lower part (Salomon et al., 2010). In the case of *M. incrassata*, adult and immature females occupy the center and the edge of the webs, respectively (Rayor and Uetz, 1990). The authors explained that there is competition for the occupation of profitable locations that offer protection but also enough prey. Thus, there was a clear difference in vertical distribution between age classes, ie, size-dependent habitat segregation along the vertical axis, which may decrease competition between individuals.

The habitat choice is also associated with the cryptity (it encompasses a series of strategies that reduce the probability of predators detecting prey, *sensu* Stevens and Merilaita, 2009). Some spiders usually minimize the risk of predation by having cryptic shapes and color patterns and by selecting substrates for web construction which reduce the contrast between their bodies and the background (Manicom et al., 2008). In this case, spiders can present different strategies that can facilitate camouflage, such as background matching (Messas et al., 2014), disruptive coloration (Robledo-Ospina et al., 2017), masquerade (Kuntner et al., 2016) and physiological and morphological color change (Riou and Christidès, 2010).

Ogre-faced spiders (Deinopidae) have the uncommon ability of manipulate the web during the capture behavior and are considered sit-and-wait predators. The spiders exhibit two distinct hunting styles referred to as "forward" and "backward" strikes (Coddington and Sobrevila, 1987). In the hunting process, the spider affixes the dragline to the substrate above the web's midline and hangs upside down, utilizing the first four legs to grasp the corners of the catching area. The fourth pair of legs retracts the drag line, and if this line is released it causes the prey-capturing web and the spider to swing forward and downward toward the substrate, usually a trunk or branch (Coddington, 2005). In a forward strike targeting ambulatory prey, the spider extends and spreads the initial four legs, distorting the web into a large, planar sheet. It then lunges at the prey, enveloping it in the web (Coddington and Sobrevila, 1987; Coddington 2005). To provoke an attack, the prey usually needs to walk directly beneath or in front of the web. The forward movement of the spider and web results from the release of dragline slack through the fourth leg claws. In contrast, during a "backward" strike aimed at flying prey, the spider extends and stretches the web similarly to a forward strike but pivots to sweep the air space behind it. Each successful strike, and often unsuccessful ones, leads to the destruction of the web. Consequently, to resume hunting, the spider must rebuild the web (Coddington and Sobrevila, 1987; Coddington, 2005). The genus *Deinopis* is the largest genus of the family, with 20 described species, of which nine occur in Brazil (World Spider Catalog, 2023). *Deinopis* species are visually oriented predators, being possible that the level of structural complexity of the surface on which the individual hunts influence their ability to efficiently access and capture prey (Robinson and Robinson, 1971; Coddington and Sobrevila, 1987). Therefore, the less complex the environment (e.g. with a smooth rather than rough surface), the less likely the capture web will become entangled in the substrate. In this regard, previous studies found a close association between *Deinopis* cf. *cylindracea* and the tree *Plinia cauliflora* (Myrtaceae), which has smooth and exfoliating barks (Ponte et al., 2020, 2021).

In this context, the present study's objectives are to: (1) describe the substrate selection and web construction site in terms of texture and vertical stratification, respectively, and (2) record behaviors during the day. Our hypothesis is that *D.* cf. *cylindracea* builds its webs associated with smooth trunks once they hunt by placing their webs (i.e., capture nets) on the prey, which decreases the chances of the capture network getting stuck to the trunk, which could then increase the chances of prey escape. Regarding vertical stratification, our hypothesis is that *Deinopis* individuals build webs close to the ground where the availability of potential prey is greater. In this manner, we expect *Deinopis* cf. *cylindracea* to build webs on smooth surfaces, either on tree trunks or over litter. Additionally, we expect this spider to adopt a posture that resembles the substrate like other *Deinopis* species since they are difficult to find during the day.

2. Material and Methods

2.1. Study site

We developed our study in Serra do Japi (Jundiaí, São Paulo, Brazil), an area covered mainly by the Montana Semidecidual Seasonal Forest. The Serra do Japi comprises a massif of 354 km² located within the municipalities of Jundiaí, Itupeva, Cabreúva, Pirapora do Bom Jesus, and Cajamar, approximately between 23º11'S and 46º52'W (Leitão-Filho and Morellato, 1997). Our field observations took place between 2014 and 2015, concurrently with the study by da Ponte et al. (2020), which showed that climatic

seasonality in the study area is notable, with periods of higher precipitation and temperature in the summer.

2.2. Substrate preference

Preliminary observations pointed to the frequent occurrence of *D.* cf. *cylindracea* on trees with smooth trunks (Figure 1). To verify whether this spider species occurred more frequently in trees with these characteristics compared to trees with rough trunks, we combined field observation and a laboratory experiment. To test our hypothesis that spiders prefer smooth over rough barks in the field, we inspected trees with smooth (*Plinia cauliflora*, N = 16) and rough barks (native species, N = 40) between 2014 and 2015. We selected these two types of trunks because they are native species of the Brazilian Atlantic

Forest and are abundant in the study area. The marked trunks of both species were at least 5 m apart from each other. The selected trunks were recorded from the ground up to 2.5 m in height and inspections took place during the months of February, March and April (months with the highest abundance of spiders) (see da Ponte et al., 2020). Each trunk was examined by two researchers for a total of 5 minutes during the night, between 19:00 h and 00:30 h. Subsequently, to compare the abundance (response variable) of *D.* cf. *cylindracea* on smooth and rough trunks (predictor variable), we performed a generalized linear model (GLM) with a Quasipoisson residual distribution, as this model did not violate the assumptions of under- or over-dispersion of residuals. Also, we used the type of trunk (smooth or rough) as the predictor variable. The test

Figure 1. Habitus of *Deinopis* cf. *cylindracea* near the trunks in Serra do Japi, Jundiaí-SP, Brazil, in an area of Semideciduous Seasonal Forest in Montana.

was performed separately for the two counting years i.e., 2014 and 2015.

To experimentally test the habitat choice hypothesis, we conducted a laboratory trial under standardized conditions to simulate the field environment. We used 29 plastic containers with 56 x 35 x 34 cm (length x width x height) containing at the bottom litter and two standing pieces of trunk (smooth and rough barks) with approximately 15 cm in diameter and 30 cm in height. Smooth trunks belong to the tree *Libidibia ferrea* (Mart. Ex Tul.) L. P. Queiroz and the rough trunks to *Jacaranda mimosifolia* D. Don. To ensure that there were no effects of available surface size on spider choice, smooth and rough logs from the same box had similar diameters (~1380 cm2); in the case of the litter surface, it was slightly larger (~1690 cm2). For the experiment, we collected 29 individuals of *D.* cf. *cylindracea* in March 2015 on another site of the Serra do Japi (Bizuti farm Trail, 23°14'31.0"S 46°56'05.0"W), so as not to affect the dynamics of the population used in the census. We released one spider in the center of each arena between the two trunks (Figure 2), between the two pieces of trunk. The spiders remained in the boxes for three nights to acclimatize and on the third night we noted the trunk chosen for attaching the webs.

For the laboratory experiment, to ascertain if *Deinopis* individuals exhibit a preference for a particular substrate (smooth bark, rough bark, or litter surface), we used GLMs with a binomial distribution (presence or absence of the spider). The levels of the treatments (substrate) represented the fixed factor. Subsequently, we used Tukey's multiple pairs comparison test to whether there are significant differences in the values obtained between the experimental trunks and the litter, once the normality of the data had been tested using the Shapiro-Wilk test. For all the statistical analyses, we used the free software R (R Core Team, 2024) with an alpha value of 0.05. We used the "multcomp" and the "glmmADMB" packages for the post-hoc test and GLM analyses, respectively (Hothorn et al., 2008, Brooks et al., 2017). To test the assumptions of under- and over-dispersion in the Quasipoisson GLM, we used AER package (Kleiber and Zeileis, 2008).

2.3 Vertical stratification

To investigate the vertical distribution preferences of *Deinopis* cf. *cylindracea*, we conducted monthly censuses from January 2014 to December 2015. During these surveys, the same researcher inspected 16 trunks of the native tree *Plinia cauliflora*, which is abundant in the study area. Each trunk was examined for 5 minutes during the night, between 19:00 h and 00:30 h. The marked trunks were at least 5 m apart from each other. We recorded the height at which each deinopid was found in relation to the ground on *P. cauliflora* trunks. For analysis purposes, we divided the trunks into five height classes between 0 and 2.5 meters, with intervals of 0.5 meters. To compare the number of individual spiders in each height class, we used a Generalized Linear Model (GLM) with a Poisson distribution after testing for non-normality of the data using the Shapiro-Wilk test. Subsequently, we employed the Tukey test for multiple comparisons as a post-hoc analysis to determine if there were statistically significant differences in the number of spiders between the different height ranges on the trunks.
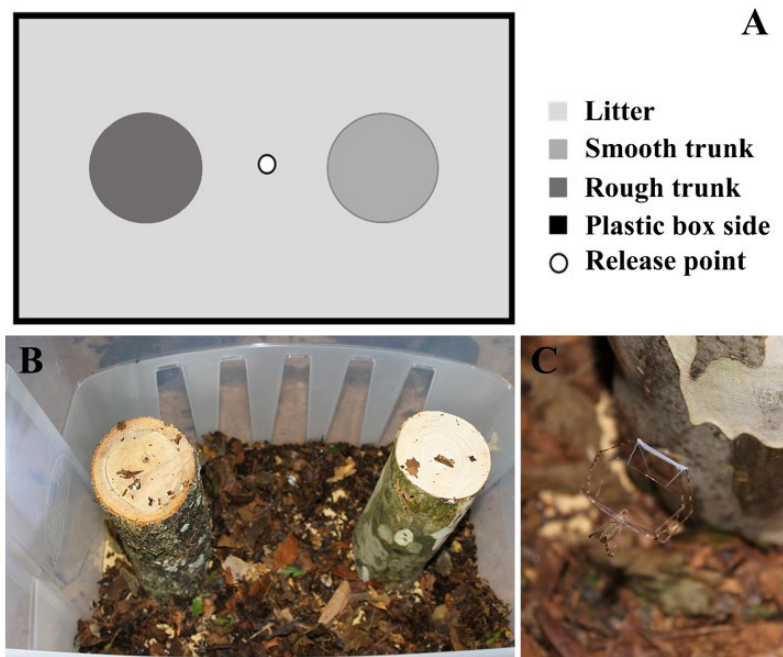

Figure 2. (**A**) Scheme of the substrate choice experiment design. Structure of the experiment: (**B**) plastic box with litter, rough trunk (left), and smooth trunk (right)of the tree *Libidibia ferrea*. (**C**) *Deinopis* cf. *cylindracea* with web constructed over smooth trunk surface during the experiment.

2.4 Record behaviors during the day

We collected data on the daytime behavior of *D.* cf. *cylindracea* monthly during the two years of this study, January 2014 to December 2015. These data comprise information on different behaviors, activity time and postures. Once per month, the same person observed the trunks of 16 *P. cauliflora* trees during the day between 07:00 and 12:00. Each observed individual was classified by instar and, when possible, by sex (only for individuals in the subadult and adult development phase), and its resting posture, since the studied spider has hunting habits only at night. We also recorded the coloration and shape of the spider's body, the spider's substrate (on the bark or nearby vegetation), and substrate general color and general shape.

3. Results

3.1. Association with smooth trunks and smooth surfaces

Regarding the distribution, we found *Deinopis* in all 16 individuals of the *P. cauliflora*. Conversely, we recorded only one spider on the 40 trees with rough trunks. It is important to consider that the availability of rough trunks is approximately 15 times higher than smooth trunks (personal observations: JVN) in our study area. This highlights a strong preference of spiders for trees with smooth trunks compared to rough ones (GLM_{2014}: F = 38.39, df= 54, R^2=0.34 p < 0.001, N=28; GLM_{2015}: F = 111.03, df= 54, R^2=0.69, p < 0.001; N=33 Figure 3).

3.2. Substrate selection

In the substrate selection experiment, the choices made by the spiders were different from what was expected by chance (GLM: z = -2.87; df= 84; p = 0.004) (Figure 4). Spiders selected preferentially smooth trunks for web construction (Tukey test: z= 3250; df = 0.427; p = 0.0035) rather than rough trunks. However, there were no significant differences between the choices of smooth trunks versus leaf litter (Tukey test: z= -2575; df = 0.427; p = 0.089), and litter versus rough trunks (Tukey test: z= 0.675; df = 0.427; p = 0.61).

3.3. Vertical stratification

There was a difference in the frequency of the *D.* cf. *cylindracea* among the different height classes of *P. cauliflora* (GLM: z = 24.78, df=75, p-value < 0.0001). Spiders were more frequent near the ground, in the height class of 0 to 50 cm (Tukey test: df= 15, R^2=41.32, p = < 0.0001) compared to other height classes (N = 422, Figure 5).

3.4. Record behaviors during the day

Deinopis cf. *cylindracea* has nocturnal habits, remaining stationary on trees or shrubs during the day and building a web for foraging at night. The most common posture consists of aligning the legs to the body's longitudinal axis, the first two pairs aligned with the prosoma and the pairs III and IV aligned to the opisthosoma (Fig. 6a). This stick-like posture was exhibited by spiders of all instars.
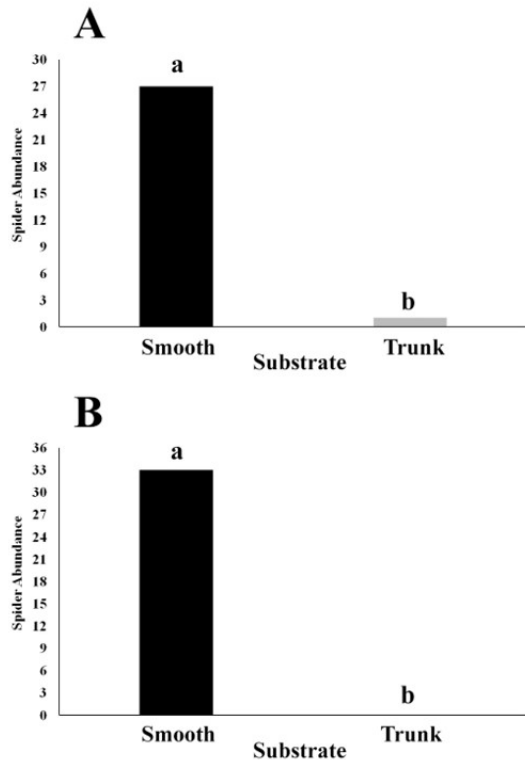

Figure 3. Comparison of the total abundance of *D. cylindracea* in relation to the substrate type (smooth and rough trunks) in Serra do Japi – São Paulo (Brazil) in the years **(A)** 2014 (N = 28) and **(B)** 2015 (N = 33). Different letters indicate statistically significant differences (alpha = 0.05).
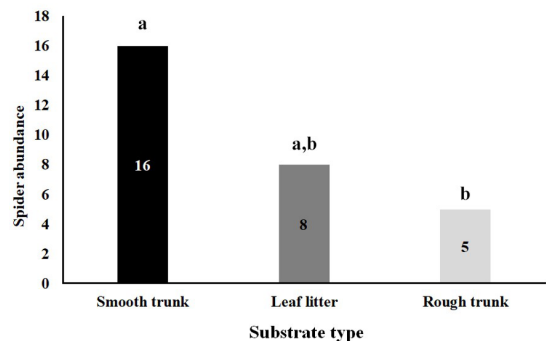

Figure 4. Total abundance of *D.* cf. *cylindracea* on different substrates (smooth trunk, rough trunk and leaf litter) under an experimental approach. The sample numbers are included inside each bar and different letters indicate significant differences (alpha = 0.05).

Additionally, to the stick-like posture, spiders presented a motionless behavior even when disturbed by slight touches. We also observed two other body rest positions: the spider holds the prey with the chelicerae and pedipalps, which differs from the most common position, where the first two pairs of legs are united and far to the side and forward, practically at a 45-degree angle from the

body, which together form the image of a Y facing down (Figure 6b). This posture was observed during the day since these spiders were not foraging during this period. The other rest position was an X-shaped body posture exclusively in adult males, characterized by four groups of two legs approximately 45° forward and backward in relation to the body's longitudinal axis. (Figure 6c). This posture was adopted either during the day or when the males were disturbed with vibrations, touches, or strong light during the night observations.

During the day, spiders exhibited stick-like or X-postures either near the trunk or hanging on thin branches or dry stems. In addition to the postural behavior, we observed the body shape (elongated) and body coloration (similar to the background), at least from a human point of view, making spiders even more similar to twigs. Spiderlings and young individuals are characterized by a dark gray color. Conversely, juveniles (Figure 6b), subadults, or adults have a dark brown coloration (Figure 7b). Alternatively, we also found juvenile to adult individuals varying in coloration, from dark gray (Figure 7c) to a mixed coloration containing dark green and light yellow, which resemble the *P. cauliflora* barks (Figure 7a). Some adult females had a pair of dorsal abdominal tubercles (Figure 7c) that varied in size, from prominent, thorn-shaped lumps to more discrete ones.

4. Discussion

The individuals of *D.* cf. *cylindracea* observed were always directed towards trunk or relatively smooth surfaces, such as large leaf litter. The substrate choice is probably associated with higher prey capture efficiency. Assuming that the prey is on uneven surfaces, such as trunks with roughness and epiphytes, the likelihood of the capture web being adhered to these structures and failing the capture is high (personal observation: VS). Thus, the habitat structure can be important for spiders when they select sites to build their webs (Janetos, 1986). For example, Brenes (2012) examined the selection of firm versus Unstable substrates as support for the construction of the web by *Cyrtophora citricola* (Forsskâl 1775) (Coddington, 1989) (Araneidae). In this experiment, *C. citricola* strongly preferred attaching silk threads to firm over unstable substrates. Although there is a strong preference for smooth bark of *P. cauliflora*, the hypothesis that there is a species-specific interaction between the spider and the plant cannot be ruled out. Furthermore, *P. cauliflora* appears to be one of the few tree species with smooth bark in the study area. Thus, future studies are still needed
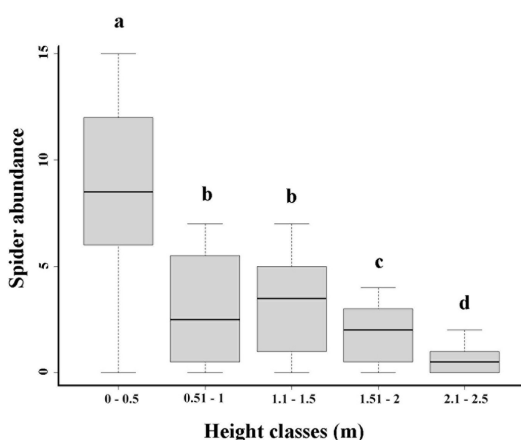
Figure 5. Comparison of the average number *Deinopis* cf. *cylindracea* individuals in each recorded height class, in meters, of the trunk of *P. cauliflora* (N = 422). Different letters indicate statistically significant differences. Box limits indicate the 25th (lower) and 75th (upper) quartiles, whiskers indicate the last datum within 1.5 interquartile ranges of the box limits, and the thick horizontal line within the box is the median.
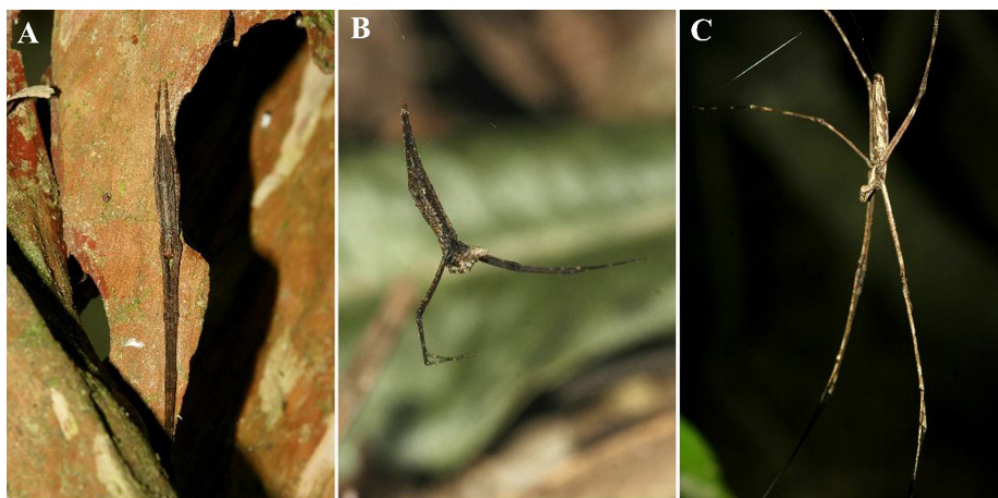
Figure 6. Postures adopted by *Deinopis* cf. *cylindracea*: During the day, **(A)** with the legs aligned to the body, (**B**) with the front legs opened, and (**C**) with front and rear legs opened.
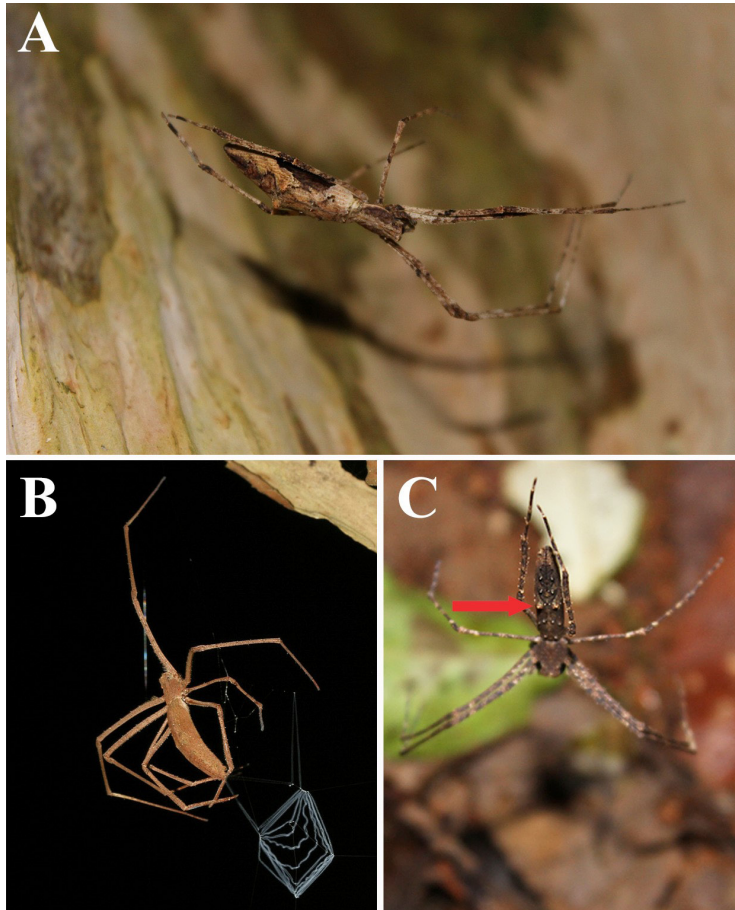
Figure 7. Females of *Deinopis* cf. *cylindracea* with (**A**) mixed body coloration and (**B**) brown body coloration. (**C**) Detail of a pair of dorsal abdominal tubercles present in some individuals.

to understand the mechanisms underlying habitat and microhabitat selection by *Deinopis*. Another possibility is that the visualization of prey by *Deinopis* may depend more on the light color of smooth trunks, which contrasts with the dark colors of the prey, than on the smoothness of the trunks themselves. However, in addition to the fact that in the study area there were only smooth and light trunks of *P. cauliflora*, we did not directly test this possibility, thus requiring further studies to understand the role of the contrasting color of prey on light surfaces in the capture of prey by *Deinopis*.

Our study showed that *D.* cf. *cylindracea* is more frequent in the lower regions (0-50 cm above the ground) of trunks. This vertical distribution concentrated in the most basal portion of the trunk could be related to the difference in the communities of trunk and soil invertebrates in the study area. In a previous study in the same area, Ponte et al. (2020) showed that the abundance of the main prey of *D.* cf. *cylindracea* (ants, beetles, and orthopterans) is higher on the ground than on the tree barks. Therefore, the trunk range near the ground is probably a transition zone with higher prey availability compared to higher heights. However, as discussed earlier, *D.* cf. *cylindracea*

requires a specific substrate to hunt, with soil being the least suitable for this purpose even though the availability of potential prey is greater. Thus, when using the lower height range, *D.* cf. *cylindracea* can be found hunting in a trunk-soil transition zone, where it can take advantage of the advantages of both substrates: the smooth surface of the trunk and a higher frequency of the main prey being captured due to its proximity to the ground. Several studies have found that spiders respond to prey abundance by selecting habitats with high prey availability (Harwood et al., 2003; Thévenard et al., 2004). In fact, prey abundance is a powerful predictor of distribution, as demonstrated by a study of the community of spiders in tree crown (Halaj et al., 1998). In addition, it is possible that *D.* cf. *cylindracea* can perceive chemical cues left by prey in this region of the trunk, as already demonstrated for some spider species (Clark et al., 2000; Johnson et al., 2011). Thus, *Deinopis* spiders will choose substrates in which these chemical cues are more likely to be present, such as lower regions of the trunk, in which prey should be abundant due to proximity to the soil. Other studies have recorded that *Deinopis* species occur in forests in tracks closer to the ground. *Deinopis amica* Schiapelli

and Gerschman (1957) was observed from the ground to 1.50 m high in a Ripparian Forest in Uruguay (Laborda et al., 2012). According to Leong and Foo (2009), among *Deinopis*, female spider was situated at knee-level, with its web framework anchored between two large fronds (ca. 30 cm apart) of the giant sword fern, *Nephrolepis kruskal* (Sw.) Schott. It was in its characteristic ambush posture, with its head facing downwards.

During the day, the resting posture found for *D.* cf. *cylindracea* was to bring anterior two pairs of limbs to face forward, while the posterior two pairs are similarly adjoined to face backward, its entire body being suspended by a loose network of threads. This diagonal "hammock" position enables the spider to blend in with the background (defined as "background matching"), providing good "camouflage" (from the point of view of human visual acuity), resembling dried leaf or twig debris (comparable to the description of Getty and Coyle, 1996; Leong and Foo, 2009). All the postures adopted by *D.* cf. *cylindracea* when disturbed or resting during the day have also been reported for other species of Deinopidae. The position wherein the legs are aligned with the body length (Robinson and Robinson, 1971; Clyne, 1967), the Y-position of camouflage during feeding (Robinson and Robinson, 1971), and the X-shaped posture were recorded this study in regard to adult males; however, previous studies cited more widespread variation within the species *D. subrufus* (Clyne, 1967). As suggested by Robinson and Robinson (1971), these postures, mainly aligned, should help to commend the likeness of *D.* cf. *cylindracea* in color and shape to a dry stick, as well as a stick-insect (Phasmida) camouflage (Robinson, 1968).

The stick-like body shape probably protects it from attacks by diurnal visually-oriented predators (Getty and Coyle, 1996). Pompilidae wasps, known to prey on adult and juvenile spiders (Evans, 1962), were also found in the study area (personal obs. Vasconcellos-Neto J.). There were also visually oriented hunting spiders, with the recording of two predation events of *D.* cf. *cylindracea*. One of them involved the predation of an adult female of *D.* cf. *cylindracea* by a Salticidae and the other by a species of Clubionidae preying on an individual of 5º instar. These two events occurred in the trunk of two different individuals of *P. cauliflora* (personal obs. R.P. da Ponte). Perhaps the presence of visually oriented predators promoted the color polymorphism in *D.* cf. *cylindracea* by frequency-dependent selection (Allen and Greenwood, 1988), however this is a hypothesis that needs to be tested in the future.

In conclusion, our study sheds light on the intricate habitat choices and behaviors exhibited by *D.* cf. *cylindracea*. There is a strong preference for spiders with smooth trunks, as demonstrated in field observations and laboratory experiments. The vertical stratification observed, with a concentration of spiders in the 0 m to 0.5 m range of tree trunks, suggests a strategic positioning that could maximize encounters with possible prey. This choice is probably influenced by the abundance of prey in this transition zone, emphasising the spider's adaptive response to the ecological dynamics of its habitat. Furthermore, the study adds nuance to existing knowledge by revealing age-dependent vertical distribution patterns, highlighting the role of spider age in habitat choice. Additionally, during the day, this spider appears to choose sites where it can adopt a stick-like posture upon the vegetation near the ground. Hunting at night and resting cryptically during the day appears to be shaped by natural selection for the survival and reproduction of this spider species.

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