OCCURRENCE OF Scolytinae IN MANGROVE WITH IMPACT TRAP AND IN WOOD OF FIVE FOREST SPECIES

OCORRÊNCIA DE Scolytinae *EM MANGUEZAL COM ARMADILHA DE IMPACTO E NA MADEIRA DE CINCO ESPÉCIES FLORESTAIS*

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ABSTRACT: Scolytinae is a beetle group belonging to Order Coleoptera; these insects play an essential role in wood degradation in forest ecosystems, since they build galleries that enable substrate colonization by other saprophytic organisms, as well as nutrient cycling. Thus, the aim of the current study was to evaluate the occurrence of Scolytinae in the wood of 5 tree species exposed to mangrove environment, as well as to simultaneously survey Scolytinae specimens captured in ethanol-baited impact traps placed in the same environment. The study was carried out in a mangrove area located in Santa Cruz neighborhood - RJ. Five freshly-harvested *Clitoria fairchildiana*, *Rhyzophora mangle*, *Corymbia citriodora*, *Melia azedarach* and *Eucalyptus pellita* wood logs (1 m long and 5-10 cm diameter) were arranged perpendicular to the ground (1 m above it) and spaced 30 cm away from each other. Five impact traps were set up 50 m away from each other, 1.3 m above the ground. Insects were collected for 5 months. One hundred and thirty (130) Scolytinae individuals (14 species in 2 genera) were recorded in the wood logs; the relative frequency (Fr) of the species comprised *Xyleborus affinis* (33.9%) and *Hypothenemus* sp.4 (17.7%), which represented 51.6% of the total number of captured individuals. *Hypothenemus* sp.6 specimens were not collected in ethanol-baited traps, but the wood of *C. fairchildiana*. *E. pellita* did not show insect infestation. The traps captured 798 individuals (24 species belonging to 8 genera); the frequency of *X. affinis* (25.3%) and *Hypothenemus eruditus* (14.5%) represented 39.8% of the total number of captured insects.

KEYWORDS: Coleoptera. Xylophagous. Forest Entomology. Mangrove.

INTRODUCTION

Insects belonging to the Order Coleoptera prevail in tropical environments; besides, they are mentioned as one of the most important pests in forest areas, since they play a key role in wood deterioration and, consequently, in nutrient cycling (GRAY, 1972). According to Berti Filho (1982), Scolytinae are one of the main agents triggering the deterioration of newly-felled wood.

Thus, scolytids (Coleoptera: Scolytinae) play a key role in wood degradation processes, since they drill galleries - for nesting and feeding purposes - in different tree parts, mainly in newly-felled or weakened trees undergoing sap fermentation processes (SIMEONE, 1965; FURNISS; CAROLIN, 1977; GONÇALVES et al., 2014). In addition, they enable moisture to penetrate these perforations - phloeophagous species remain restricted to the bark of trees, whereas xylomycetophagous species go deep into the wood, which becomes a potential site for the development of fungi (symbiont or not). These fungi are responsible for accelerating the degradation of this substrate, which can lead to severe losses when the wood is used for commercial purposes (COULSON; LUND, 1973; FINDLAY, 1985). On the other hand, these insects play an important ecological role in assisting the nutrient cycling process. The wood could decompose much slower if it was not for the action of these Coleoptera, since galleries built by them enable the action of decomposers.

Thus, scolytids can be found in virtually all forest ecosystems, including in mangroves. However, this ecosystem has peculiar ecological features such as intermittent tidal regimes that could hinder the action of Scolytinae, since everyday salt water occupies sites that, on land, enable the action of organisms such as litter, fallen trunks and senescent shrubs. Given the reduced number of ecological Scolytinae niches, these organisms are not expected to be often found in mangroves in comparison to other forest environments. Despite the scarcity of research focused on elucidating this issue, some studies have reported that this group is abundant and acts in this ecosystem (GERÓNIMO-

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TORRES et al., 2015). So far, there is no research focused on addressing this issue in Brazil.

Accordingly, experiments conducted in Belize (Central America) have shown that living *Rizophora mangle* trees are attacked by several species of wood borers, including by Scolytinae larvae (FELLER; MATHIS, 1997). Jordal (2014) has reported that some Scolytinae species feed on, and develop in, roots of mangrove plants.

In light of the foregoing, the aim of the current study was to evaluate the occurrence of Scolytinae on the wood of five tree species exposed to mangrove environment, as well as to simultaneously survey scolytids captured in ethanol-baited impact traps placed in the same environment.

MATERIAL AND METHODS

The experiment was carried out in a mangrove area located in Santa Cruz neighborhood (22° 5' 39.85" S, 43° 46' 12.89' W), Rio de Janeiro, from March 17 to July 28, 2011. According to Köppen's classification (1948), the climate in the area is Aw, i.e., rainy season in summer and dry season in winter. The annual rainfall reaches 2,230 mm and it is concentrated from November to April; the mean annual temperature is 24.7ºC.

The wood used in the experiment were from trees belonging to the species: *Melia azedarach* L. (for ray), Meliaceae; *Clitoria fairchildiana* R. A. Howard (sombreiro), Fabaceae; *Eucalyptus pellita* F. Muell (eucalyptus), Myrtaceae; *Corymbia citriodora* (Hook) K. D. Hill & L. A. S. Johnson (eucalyptus), Myrtaceae; and *Rhyzophora mangle* L. (red mangrove), Rhizophoraceae. Specimens from the first four species were collected from trees grown on the campus of Federal Rural University of Rio de Janeiro (UFRRJ) in Seropédica-RJ, whereas the *R. mangle* specimen was collected at the site where the experiment was conducted.

Five wood logs 1m long with diameter varying from 5.0 to 10.0 cm were used from the aforementioned forest species. Wood samples from each forest essence were arranged perpendicular to the ground, 1.0 m above it and spaced 30 cm away from each other, one day after they were collected from the forest species. They were supported by a wire stretched between two trees inside the mangrove to prevent the logs from being touched by water, even at full tide. The experimental design was based on completely randomized blocks separated from each other by five meters, with five repetitions.

Thirty days after the wood logs were exposed to the mangrove environment, 10-cm-long sub-samples were collected from each investigated species with a pruning saw; this procedure was repeated every 15 days. These sub-samples were placed in transparent plastic bags (20 liters), sealed and taken to the Forest Entomology Laboratory of the Forest Products Department at UFRRJ (LEF/DPF/UFRRJ), where they were subdivided and Scolytinae individuals were collected.

Five ethanol-baited impact traps, model Carvalho-47 were also set up at the place where the experiment was carried out to attract and capture scolytids (CARVALHO, 1998). The traps were installed 1.3 m above the ground and spaced 50 m away from each other. Insects captured by the traps were collected on a weekly basis, when the ethanol was refilled. Captured insects were taken to LEF/DPF/UFRRJ in order to classify and quantify individuals belonging to subfamily Scolytinae. It was done to enable calculating the absolute and relative frequency, as well as to determine the incidence of these species.

Insects captured by the traps and the ones collected in the wood samples were sent to one expert for taxonomic identification purposes. The frequency of each Scolytinae species was calculated in both experiments, based on the ratio between the number of individuals from each species and the total number of collected individuals, multiplied by 100; results were expressed in percentage. The incidence of the two main Scolytinae species (higher Fr) collected through impact traps and wood subsamples were graphically represented.

The dominance of collected species was also analyzed; species whose frequency was higher than 1/S were categorized as dominant, whereas species whose frequency was lower than 1/S were categorized as non-dominant; wherein S is the total number of species in the community (Richness). As for their constancy, species found in more than 50% of samples were classified as constant, the ones found in 25-50% of samples were accessory, and those found in less than 25% of samples were accidental (URAMOTO; WALDER; ZUCCHI, 2005). These individuals were also grouped based on their eating habits, according to the classification by Wood (1982).

RESULTS AND DISCUSSION

One hundred and thirty (130) individuals belonging to subfamily Scolytinae were found the wood; they were distributed in 14 species belonging to genera *Hypothenemus* and *Xyleborus*. The impact traps captured 798 individuals belonging to 24 species, which were distributed in 8 genera (Table

1). Similar result was reported by Laidlaw et al. (2003), who found that pheromone-baited funnel traps captured twice as many Scolytinae individuals as the wood from exposed trees at the same time and place as the aforementioned traps.

Table 1. Absolute (Fa) and relative (Fr) frequencies, dominance (dominants (D) and non-dominants (N)) and constancy of bark and ambrosia beetles species captured in mangrove environment, in traps (Tr.) and in the wood (Woo.) of 4 forest species, from March to July 2011.

Species	Wood		Trap		Dominance		Constancy		Habit*
	Fa	Fr	Fa	Fr	Woo.	Tr.	Woo.	Tr.	
Xyleborus affinis Eichhoff	44	33.9	202	25.3	D	D	Accessory	Constant	1
Hypothenemus sp.4	23	17.7	78	9.8	D	D	Constant	Constant	2;3
Hypothenemus sp.13	18	13.8	13	1.6	D	N	Accessory	Accidental	2;3
Hypothenemus sp.7	14	10.8	76	9.5	D	D	Accessory	Constant	2;3
Hypothenemus eruditus Westwood	6	4.6	116	14.5	D	D	Accidental	Constant	2;3
Hypothenemus sp.10	5	3.8	8	1	N	N	Accidental	Accidental	2;3
Hypothenemus obscurus (Fabricius)	4	3.1	43	5.4	N	D	Accessory	Constant	2;3
Hypothenemus sp.6	4	3.1	0	0	N	-	Accidental	-	2;3
Xyleborus ferrugineus (Fabricius)	4	3.1	2	0.3	N	N	Accessory	Accidental	1
Hypothenemus sp.3	2	1.5	6	0.7	N	N	Accidental	Accidental	2;3
Hypothenemus sp.11	2	1.5	2	0.3	N	N	Accidental	Accidental	2;3
Hypothenemus sp.9	2	1.5	4	0.5	N	N	Accidental	Accidental	2;3
Hypothenemus sp.12	1	0.8	3	0.4	N	N	Accidental	Accidental	2;3
Hypothenemus sp.5	1	0.8	2	0.3	N	N	Accidental	Accidental	2;3
Ambrosiodmus opimus (Wood)	0	0	54	6.8	-	D	-	Constant	1
Hypothenemus sp.2	0	0	50	6.3	-	D	-	Constant	2;3
Cryptocarenus heveae (Hagedorn)	0	0	36	4.5	-	D	-	Constant	1;3
Tricolus subincisuralis Schedl	0	0	26	3.2	-	N	-	Constant	1
Hypothenemus sp.1	0	0	21	2.6	-	N	-	Constant	2;3
Hypothenemus sp.8	0	0	19	2.4	-	N	-	Constant	2;3
Premnobius cavipennis Eichhoff	0	0	17	2.1	-	N	-	Constant	1
Ambrosiodmus obliquus (LeConte)	0	0	14	1.8	-	N	-	Accidental	1
Cryptocarenus seriatus Eggers	0	0	4	0.5	-	N	-	Accidental	1;3
Microcorthylus minimus Schedl	0	0	1	0.1	-	N	-	Accidental	1
Pityophthorus sp.1	0	0	1	0.1	-	N	-	Accidental	1;3

1= Xylomycetophagous; 2=Herbiphagous; 3= Myelophagous.

Of the 25 species identified in the mangrove, only *Hypothenemus* sp.6 was not captured in the traps; it was only recorded in the wood *C. fairchildiana* specimens. Although both collection methods were capable of successfully capturing insect species *Hypothenemus* sp.13 and *Xyleborus ferrugineus* (Fabricius), the number of insects captured by the wood logs was larger than that of insects captured by the traps (Table 1). Both species were captured in *C. fairchildiana* wood logs; however, *Hypothenemus* sp.13 was also captured in the wood of *R. mangle* specimens, whereas *X. ferrugineus* was captured in the wood of *M. azedarach* specimens (Table 2).

The time pattern of the incidence of bark and ambrosia beetles species captured in traps was not similar to that of species directly collected in wood samples (Figure 1). The explanation for this outcome may be associated with specific wood conditions, mainly with moisture and extractive fermentation (LUNZ; CARVALHO, 2002), which have changed depending on the time of exposure in the field and influenced the incidence of insects. The same did not apply to traps, since they enabled constant insect-attraction conditions throughout the experimental period.

The species most often captured in traps were *Xyleborus affinis* Eichhoff and *Hypothenemus eruditus* Westwood, which accounted for 39.8% of captured individuals. These species also accounted for 38.5% of individuals captured in wood logs; therefore, they were categorized as dominant species in the mangrove, based on the two collection strategies (Table 1).

Table 2. Absolute (Fa) and relative (Fr) frequencies of Scolytinae species collected in the wood of 4 forest species exposed to mangrove environment, from March to July 2011.

Wood	Insect species	Fa	Fr
C. fairchildiana	*Xyleborus affinis* Eichhoff	43	43.0
	Hypothenemus sp.4	14	14.0
	Hypothenemus sp.13	12	12.0
	Hypothenemus sp.7	8	8.0
	Hypothenemus eruditus Westwood	5	5.0
	Hypothenemus obscurus (Fabricius)	4	4.0
	Hypothenemus sp.6	4	4.0
	Xyleborus ferrugineus (Fabricius)	3	3.0
	Hypothenemus sp.10	2	2.0
	Hypothenemus sp.3	2	2.0
	Hypothenemus sp.11	1	1.0
	Hypothenemus sp.9	1	1.0
	Hypothenemus sp.5	1	1.0
Total		**100**	**100.0**
R. mangle	*Hypothenemus* sp.4	8	32.0
	Hypothenemus sp.13	6	24.0
	Hypothenemus sp.7	5	20.0
	Hypothenemus sp.10	3	12.0
	Hypothenemus eruditus Westwood	1	4.0
	Hypothenemus sp.11	1	4.0
	Hypothenemus sp.12	1	4.0
Total		**25**	**100.0**
C. citriodora	*Hypothenemus* sp.4	1	33.3
	Hypothenemus sp.7	1	33.3
	Hypothenemus sp.9	1	33.3
Total		**3**	**100.0**
M. azedarach	*Xyleborus affinis* Eichhoff	1	50.0
	Xyleborus ferrugineus (Fabricius)	1	50.0
Total		**2**	**100.0**
E. pellita	-	0	0
Total		**0**	**0**

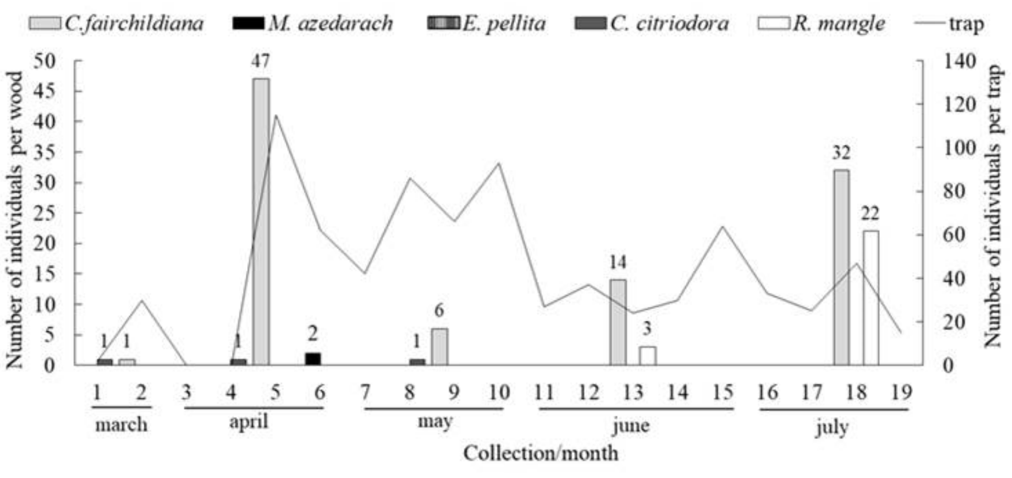

Figure 1. Number of Scolytinae individuals captured in ethanol-baited traps and in the newly-felled wood of 5 forest species exposed to mangrove environment for 5 collection months.

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Species *H. eruditus* is often found in tropical regions (PEDROSA-MACEDO; SCHÖNHERR, 1985; FLECHTMANN et al., 1995) and *Xyleborus* is the richest genus within subfamily Scolytinae (KUMAR; CHANDRA, 1977) and one of the most abundant in Brazil (FLECHTMANN et al., 1995). Gerónimo-Torres et al. (2015) have used impact traps to investigate the incidence of bark and ambrosia beetles in mangroves in Mexico; they recorded the incidence of 22 Scolytinae species, as well as of *X. affinis* and *H. eruditus*. However, species *Xyleborus volvulus* (Fabricius) recorded the highest relative frequency and it was followed by *X. ferrugineus* and *X. affinis*. *H. eruditus* was the eighth most collected species (GERÓNIMO-TORRES et al., 2015). Impact traps were used by Pereira (2006) to collect insects in a *Pinus* spp. forest stand in Paraná State (Brazil), who recorded significant abundance of *X. ferrugineus*.

Besides being the most common species in genus *Xylodromus* (WOOD, 1982), *X. affinis* is one of the species most often captured in traps due to high tropism in the presence of ethanol (PEDROSA-MACEDO; SCHÖNHERR, 1985; ABREU; FONSECA; MARQUES, 1997). Thus, the mangrove environment in Rio de Janeiro State can contribute to significant incidence of *X. affinis* due to its great humidity and temperature conditions for most of the year (Table 1). This hypothesis was corroborated by Beaver (1976), who emphasized that the hotter and wetter the environment, the better the *X. affinis* adaptation to it.

Several surveys carried out in Brazil have highlighted the significant abundance of *H. eruditus* captured in ethanol-baited traps. Among these surveys, one finds the ones carried out on land in *Pinus* spp. (MARQUES, 1989; PEREIRA, 2006); in *Pinus* and *Eucalyptus* (FLECHTMANN; OTTATI; BERISFORD, 2001); in *Hevea brasiliensis* (Willd. ex A.Juss.) Müll.Arg. (rubber tree) (DALL'OGLIO; PERES FILHO, 1997); in *Acacia mearnsii* De Willd. (MURARI, 2005); forest formations (SILVA, 2000); in native forest in Southern Brazil (PELENTIR, 2007); and native forest (CARVALHO; ROCHA; LUNZ, 1996). However, Andreiv and Müller (1998) have stated that the incidence of *H. eruditus* is associated with modified environments and that this species is rarely found in native forests.

Xyleborus affinis and *Hypothenemus* sp.4 were the species most often found in the wood logs used in the current study; they accounted for 51.6% of the collected individuals. They also accounted for 35.1% of individuals captured in traps; consequently, they were categorized as dominant species in the mangrove environment (Table 1). Species belonging to genus *Xyleborus* are among the most destructive groups; they present significant aggressiveness and can damage any part of freshly-harvested or standing trees, or even healthy hosts; besides, they can cause damages such as small holes with black marks associated with xylophagous fungi (CHANDRA, 1981; WOOD, 1982). On the other hand, genus *Hypothenemus* is herbiphagous and myelophagous; individuals belonging to this genus feed on the marrow of small branches, as well as on tree branches, shrubs, lianas, fruits or seeds, and on other plant materials (WOOD, 1977, 1982). However, based on the eating habits of Scolytinae species captured in the mangrove environment, 12% of them were xylomycetophagous/myelophagous, 28% were exclusively xylomycetophagous and 60% were herbiphagous/myelophagous. These findings differ from the ones recorded by Meuer et al. (2013) in Pantanal of Cáceres, Mato Grosso State, Brazil, where 99% of the captured species were xylomycetophagous. According to Wood (1982), the increased incidence of xylomycetophagous scolytids is associated with food resource and host availability. Thus, it is possible assuming that the low botanical diversity found in the mangrove environment, as well as other ecological attributes inherent to this ecosystem such as intermittent tide regimes, are factors that hinder the incidence of scolytids, mainly of species xylomycetophagous.

Although species *X. affinis* recorded one of the highest incidences in the wood logs (33.9%) exposed to the mangrove environment, genus *Hypothenemus* recorded the largest total number of individuals; it presented 63% representativeness with 12 different species. Species *X. affinis* recorded the highest incidence (25.3%) of insects captured in traps; however, the group of species belonging to genus *Hypothenemus* accounted for 55.3% of the total number of captured insects (Table 1). Rocha et al. (2011) have analyzed the incidence of Scolytinae in *Eucalyptus camaldulensis* reforestation system in Mato Grosso State; based on their results, species *H. eruditus* and *X. affinis* were more often found in the dry season, whereas *X. ferrugineus* prevailed in the rainy season. Dorval et al. (2017) conducted a study in a closed-forest savanna in Cuiabá County (MT) and observed higher incidence of species *X. affinis* than of *X. ferrugineus* in all seasons.

Melia azedarach wood logs were only colonized by scolytids belonging to genus *Xyleborus schollitans*, whereas *C. citriodora* and *R. mangle* wood logs were only colonized by species belonging to genus *Hypothenemus* (Table 2). This feature can be associated with specific volatile substances from each forest species; these substances can attract or repel Scolytinae. Therefore, it is possible assuming that some bark and ambrosia beetles genera may show preference for certain wood types, when they can choose, as seen in the experimental situation simulated in the current study. In addition, some insects may have been more attracted to ethanol than other species, or some wood species used in the test were not attractive to some insect species in the mangrove environment. Furthermore, it is worth highlighting that *E. pellita* wood logs did not present infestation by Scolytinae (Table 2), as well as that species *Hypothenemus* sp.6 was not captured in traps.

Accordingly, Marques (1989) has compared Scolytinae populations captured in ethanol-baited traps set up in *Pinus* plantation to the ones directly collected in the wood of this tree species and did not find equivalent populations between the two capturing methods. There was higher incidence of *H. eruditus* in traps, whereas wood logs presented higher incidence of *X. ferrugineus* individuals and no representative of species *H. eruditus*. The aforementioned study diverges from findings in the current study, since *H. eruditus* individuals were collected in traps (Table 1) and in the wood of *C. fairchildiana* and *R. mangle*, whereas species *X. ferrugineus* was captured in the wood of *C. fairchildiana* and *M. azedarach* (Table 2).

Clitoria fairchildiana wood logs recorded the highest total incidence of Scolytinae (76.9%), and they were followed by *R. mangle* (19.2%), *C. citriodora* (2.3%) and *M. azedarach* (1.6%). No individuals were found in *E. pellita* wood logs. The considerably larger number of scolytids in *C. fairchildiana* can be mainly explained by the incidence of species *X. affinis*, which accounted for 33.9% of the total number of insects collected in all wood logs (Table 1). Abreu (1992), Abreu and Bandeira (1992) and Abreu et al. (2002) have evaluated the incidence of Scolytinae in the Amazon region and also found a larger number of *X. affinis* individuals infesting different wood species.

However, Lunz and Carvalho (2002) adoted a methodology equivalent to the one applied in the current study in order to evaluate the incidence of Scolytinae in the wood of six botanical species grown in an Atlantic Forest fragment. Results showed that *H. eruditus* and *Coccotrypes palmarum* Eggers were the scolytids most often found in the wood of *C. fairchildiana* . These findings were different from the ones observed for this wood species in the current study (Table 2). Lunz and Carvalho (2002) have found 473 Scolytinae individuals in *C. fairchildiana* samples, whereas the current study, which adopted equivalent sample effort, found only 100 individuals in this wood species. Therefore, the comparison between findings by Lunz and Carvalho (2002) and those in the current study may generate the hypothesis that mangroves present peculiar ecological features that can enable conditions capable of hindering the action of Scolytinae insects in wood. In order to corroborate this hypothesis, it is worth highlighting that *E. pellita* wood logs exposed to the mangrove environment were not infested by Scolytinae insects. This outcome differs from the one recorded by Dorval et al. (2007), who evaluated bark and ambrosia beetles infestations in the wood of 4 different eucalypt species grown in terrestrial environment and found that *E. pellita* was one of the species most infested by these insects. Therefore, the ecological features of the mangrove environment investigated in the current study could explain the lack of infestation and the low action of Scolytinae insects in the wood of *E. pellita* and *C. fairchildiana*, respectively, in comparison to the studies by de Dorval et al. (2007) and Lunz and Carvalho (2002).

Among the species captured in the wood logs, only *Hypothenemus* sp.12 was not found in *C. fairchildiana* however was exclusively captured in *R. mangle*. Thus, it is possible suggesting that genus *Hypothenemus* prefers the wood of *R. mangle* species, since no other Scolytinae genus was found in it. Importantly, there are endemic and specific species of mangrove trees such as *Coccotrypes rhizophorae* (Hopkins) that, according to Sousa, Quek and Mitchell (2003), are exclusively found in trees grown in this environment, such as *R. mangle*, *Rhizophora mucronata* Lam and *Nephelium lappaceum* L.; however, this scolytid was not yet recorded in Brazil (WOOD, 2007). In addition, according to the aforementioned author, Scolytinae species *Scolytopsis puncticollis* Blandford is distributed throughout the Americas and uses the tree species *Laguncularia racemosa* (L.) C.F. Gaertn (white mangrove) as host; however, it was not captured in the current experiment.

The time incidence of *X. affinis*, *H. eruditus* and *H.* sp.4 was compared between the two collection strategies. Results showed that the population pattern differed between wood and traps throughout the experiment. However, there was similar incidence of *X. affinis* in both collection methods. The population peak of this species was recorded in April, both in traps and in wood logs. However, the incidence of this species in wood logs decreased considerably in May (Figure 2).

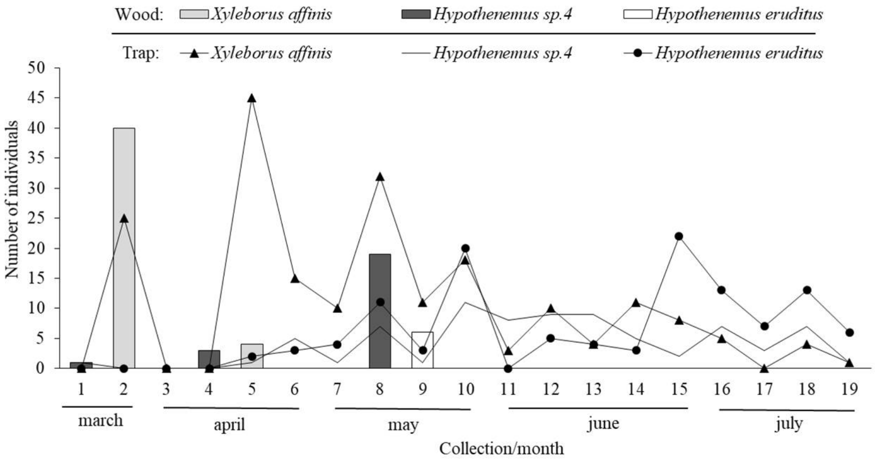

Figure 2. Incidence of the two most captured species in wood samples and in ethanol-baited traps placed in mangrove environment.

Such decrease may be explained by the fact that wood does not present the proper conditions to enable *X. affinis* development, i.e., the longer this substrate remained exposed in the field, the higher the loss of moisture to the environment. Since this scolytid present xylomycetophagous behavior, moisture is a vital condition to enable its action in the wood (WOOD, 1982). Besides this hypothesis, it is worth emphasizing that *X. affinis* was no longer captured in the wood logs from June on; it was only captured by traps until the end of the experimental period (Figure 2). This outcome has evidenced that *X. affinis* individuals remained in the environment; however, the wood logs, were probably no longer attractive to them.

On the other hand, individuals belonging to genus *Hypothenemus* were captured in traps throughout the experimental period, as seen in *X. affinis*. However, the incidence of individuals belonging to this genus in the wood logs was only observed from May on, which corresponded to half of the experimental period (Figure 2). This outcome suggests that individuals belonging to genus *Hypothenemus* demand less wood moisture because they do not present xylomycetophagous behavior (ABREU et al., 2002). Thus, it could explain the capture of this group in the wood logs from the middle to the end of the experimental period, i.e., when the substrate presented lower moisture level than that of the beginning of the experiment.

With respect to the constancy of species captured in traps, 50% were categorized as constant, whereas 50% were categorized as accidental species. As for the constancy of species captured in wood logs, *H.* sp.4 was the only constant species (7.7%) in the mangrove environment, whereas the other species were categorized as accessory (38.5%) and accidental (53.8%). Species *H.* sp.4, *X. affinis* and *H. eruditus*, which were constantly captured in traps, presented constant, accessory and accidental distribution in the wood logs, respectively (Table 1).

CONCLUSION

Scolytinae is a group distributed in mangrove environment in Rio de Janeiro State, but it presents lower intensity in this environment than on solid ground. *Eucalyptus pellita* wood is not infected by Scolytinae in mangrove, but *Clitoria fairchildiana* is highly infected by them in this biome.

In total, 25 Scolytinae species were found in the mangrove, and the xylomicetophagus species *Xyleborus affinis* was the most abundant either in the wood or in the traps. Wood is attractive to *Xyleborus affinis* just for two months after tree felling. Genus *Hypothenemus* is attracted by wood for five months in mangrove environment, after tree felling. The strategy adopted to capture Scolytinae in mangrove environment was more effective when impact traps were armed than in wood from recently felled trees.

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RESUMO: Scolytinae é um grupo da Ordem Coleoptera que tem função importante na degradação da madeira em ecossistemas florestais, através da construção de galerias, facilitam a colonização por outros organismos saprófitas neste substrato, auxiliando a ciclagem de nutrientes. Nesse contexto, este trabalho teve como objetivo avaliar à ocorrência de Scolytinae na madeira de cinco espécies arbóreas expostas em ambiente de mangue, bem como realizar simultaneamente, o levantamento dos escolitíneos capturados por armadilha de impacto iscada com etanol no mesmo ambiente. O estudo foi realizado numa área de manguezal, no Bairro de Santa Cruz-RJ. Cinco toras de madeira recém abatidas de *Clitoria fairchildiana*, *Rhyzophora mangle*, *Corymbia citriodora*, *Melia azedarach* e *Eucalyptus pellita*, de 1 m e diâmetro variando 5-10 cm, foram dispostas perpendicularmente ao solo a uma altura de 1 m e espaçadas de 30 cm. Cinco armadilhas de impacto foram instaladas a uma distância de 50 m entre si a uma altura de 1,3 m em relação ao solo. Os insetos foram coletados durante o período de 5 meses. Nas madeiras, registrou-se 130 indivíduos de Scolytinae (14 espécies em 2 gêneros) cuja frequência relativa (Fr) das espécies foi: *Xyleborus affinis* Eichhoff (33,9%) e *Hypothenemus* sp.4 (17,7%) representando 51,6% do total de indivíduos capturados. *Hypothenemus* sp.6 não foi coletada em armadilha etanólica, sendo capturada na madeira de *C. fairchildiana*. Em *E. pellita* não houve infestação. Nas armadilhas foram capturados 798 indivíduos (24 espécies em 8 gêneros), cuja a Fr de *X. affinis* (25,3%) e *Hypothenemus eruditus* Westwood (14,5%) representou 39,8%.

PALAVRAS-CHAVE: Coleoptera. Xilófagos. Entomologia florestal. Mangue.

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