

Lianas of the Sapindaceae family in Selvíria, Mato Grosso do Sul, Brazil.

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Abstract. The lack of relevant information concerning climbing plants resulted in an ineffective collection effort for this specific habit which was neglected for a long period of time. In addition to this fact, it's known that the fragmentation of the vegetation takes place faster than the scientific community can gather efforts to catalogue and identify relevant information about the native floristic composition. Through the past decades this scenario has been changed due to great achievements about the climbing habit and their particular adaptations to many challenges they may face to survive in the nature. The Sapindaceae family is an essential group among the lianas as a consequence of its economic importance, but the group was chosen to carry out the study for being cosmopolitan. Comparing the data collected on online databases and the collected species -it was found that some species of the Sapindaceae family wasn't registered to that specific area, leading to the conclusion of scarce collection.

Keywords. Cerrado, Atlantic Forest, climbing plants, vines, herbarium.

1. Introduction

Lianas are among the main components of a rainforest. Besides the fact that they are present from the pioneer stages, they can also produce about 36% of all litter. This group of plants can also be considered indicators of disturbances because their rapid spatial conquest in glades indicates that there was a fragmentation in that place (Puig, 2008). They also have diversification as they occupy the most diverse spaces in adverse conditions. In general, their stems are irregular structure formed by starred, aliform or lobed arches with a central cylinder joining other units; all those structures are adaptations for their long and tortuous paths through different environmental conditions. Even so, vines were long neglected as collection efforts were always centered on trees and shrubs, but this reality is now changing.

Sapindaceae is a cosmopolitan family of great economic importance composed of arboreal, shrub and climbing species. The leaves are alternate and spiral or opposite, compound pinnate or palmate, tri- or unifoliate (Judd et al. 2009). In lianas, the stems are usually multiple vascular cylinders, often have white latex and have the pedicel of the basal flowers of the inflorescence modified into tendrils (Sprengel-Lima et al., 2013).

The studied area covers an ecotone region between the Cerrado and the Atlantic Forest. Ecotones are transition regions between two phytogeographic domains characterized by their rich and unique biodiversity (Kark, 2012). As much as it is an area of relative abundance, it has already suffered major anthropic impacts with the removal of some surface horizons from the soil, as mentioned by Calgareo et al., 2015.

Therefore, it is evident that the speed in which vegetation fragmentation occurs is greater than that of science in surveying species, so it is necessary to intensify collections and include other forms of phanerogams that are not just trees and shrubs, such as epiphytes, vines and herbs in order to ensure the likelihood of sampling (Durigan et al. 2008).

2. Objective

This study aims to inventory the species of vines of the Sapindaceae family at the Teaching, Research and Extension Farm of the Faculty of Engineering of Ilha Solteira, São Paulo State University “Júlio de Mesquita Filho”.

3. Methodology

3.1 Location

This study is being carried out at the Teaching, Research and Extension Farm (FEPE) of the Faculty of Engineering of Ilha Solteira, São Paulo State University “Júlio de Mesquita Filho” (FEIS/UNESP), located in the municipality of Selvíria, in the state of Mato Grosso do Sul, Brazil (20°19' – 20°24' S and 51°24' – 51°23' W), on the left bank of the Paraná River, on the border with the State of São Paulo.



Figure 1 – Teaching, Research and Extension Farm (FEPE), highlighted in red the location of the study area (Source:www.google.com/maps/place/Fazenda+Unesp+-+Feis/@-20.3709179,-51.3998727,13.67).

3.2 Materials and Methods

To carry out the floristic inventory of the species of liana of the Sapindaceae family of FEPE, occasional collections were carried out in the years 2014, 2015 and 2016. Trails along the edge and inside the study area were covered in order to collect species of climbing plants, in the reproductive and/or vegetative stages. The specimens were collected and herborized according to the usual techniques presented by Fidalgo and Bononi (1989). The preliminary identification of the botanical material was carried out in the field and complemented

and/or checked by comparison with materials deposited in the Herbarium of Ilha Solteira (HISA), in virtual herbaria on the world wide web and by consulting the specialized bibliography.

Species were sorted into genera and families according to the APG IV system (THE ANGIOSPERM PHYLOGENY GROUP, 2016). To verify botanical synonyms, authorship and spellings, were used the databases W3 Tropicos do Missouri Botanical Garden (<http://www.tropicos.org>), International Plant Names Index (<http://www.ipni.org>) and the Brazilian Flora Species List (<http://floradobrasil.jbrj.gov.br>).

4. Results

The Sapindaceae family, in the national territory, is represented by 28 genera and 417 species, of which 253 are vines, in Mato Grosso do Sul, of the 61 existing species, 41 are vines. (<http://floradobrasil.jbrj.gov.br>). In the present study, 3 genera and 15 species of vines of Sapindaceae were sampled, as follows: *Cardiospermum grandiflorum*, *Paullinia spicata*, *Serjania acoma*, *Serjania caracasana*, *Serjania erecta*, *Serjania fuscifolia*, *Serjania hebecarpa*, *Serjania laruotteana*, *Serjania lethalis*, *Serjania mansiana*, *Serjania meridionalis*, *Serjania orbicularis*, *Serjania ovalifolia*, *Serjania pinnatifolia* e *Urvellea ulmacea*.

Tab. 1 – New species sampled.

Species	Genus	Specific name
1	Cardiospermum	gradiflorum
2	Paullinia	spicata
3	Serjania	acoma
4	Serjania	caracasana
5	Serjania	erecta
6	Serjania	fuscifolia
7	Serjania	hebecarpa
8	Serjania	laruotteana
9	Serjania	lethalis
10	Serjania	mansiana
11	Serjania	meridionalis
12	Serjania	orbicularis
13	Serjania	ovalifolia
14	Serjania	pinnatifolia
15	Urvellea	ulmacea

5. Discussion

Of the species already identified and recorded in Mato Grosso do Sul, as in the survey carried out by

Gropo et al., 2018, *Serjania laruotteana* and *Serjania pinnatifolia* can be considered as new records for this state. This evidence can be explained by the insufficiency of collections in the State of Mato Grosso do Sul, since they total 2841, while in the State of São Paulo this value is 9655, for the Sapindaceae family, according to data available on the speciesLink network (<http://www.splink.org.br>).

It is also important to note that the area under study is expected to have a great richness and diversity of species as it is located in a transition region between the Cerrado and the Atlantic Forest between the states of São Paulo and Mato Grosso do Sul.

6. Conclusions

From the results of this study, two new occurrences of species of vines of the Sapindaceae family were observed for the flora of Mato Grosso do Sul at the Teaching, Research and Extension Farm (FEPE). Thus, it can be concluded that more studies and surveys of species of flora should be carried out in the State of Mato Grosso do Sul, taking into account all forms of life of phanerogams so that the samples come as close to reality as possible.

7. References

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