



## Cultivo de Plantas Medicinais Nativas de Amajari – RR

### Growing Native Medicinal Plants in Amajari – RR

10.56238/isevmjv3n3-017

Receipt of originals: 05/23/2024

Acceptance for publication: 06/13/2024

**Iraci Fidel<sup>1</sup> and Letícia de Souza Silva<sup>2</sup>**

#### ABSTRACT

This work aimed to implement a permanent area to produce medicinal, native and exotic plants, especially those at risk of extinction. The cultivated species were herbs, shrubs and medicinal trees of various species, native and exotic. 19 species were cultivated by 20 students from the Ovídio Dias de Souza State School who participated in practices at the school. It was observed that the fact that most students report having a preference to use medicinal plants, perhaps due to the lack of any other way to maintain or recover their health, is, in a way, a positive aspect, because in addition to strengthening traditional practices regarding the use and traditional knowledge of medicinal plants, it is an activity that values the preservation of the local flora.

**Keywords:** Amazon, Ethnobotany, Biodiversity, Phytotherapy.

#### INTRODUCTION

The State of Roraima is composed of a very heterogeneous population, comprised of Northeasterners, Southerners and Amazonians, who have the habit of using medicinal plants in their cultural manifestations and customs. The municipality of Amajari is located in the northern region of the state, 156 km from the capital Boa Vista. Latitude 03039'11" North, Longitude 61022'17" West, Elevation 100 meters, Equatorial Climate Koppen-Geiger-Af climate classification. and an area of 28,598.4 km<sup>2</sup>, with an estimated population of 13,927 inhabitants (IBGE, 2022).

Despite their frequent use, medicinal plants have a very incipient cultivation, being restricted to backyard beds and subsistence cultivation in small commercial gardens, or predatory extractivism. Rural producers use rudimentary techniques, do not receive training, incentives and are not part of projects by public agencies.

---

<sup>1</sup> Doctor in Plant Science from the Federal University of Viçosa (UFV)  
Federal Institute of Education, Science and Technology of Roraima (IFRR/CAM)  
Email: iraci.fidelis@ifrr.edu.br

<sup>2</sup> Undergraduate student in Biomedicine at Estácio de Sá University  
Federal Institute of Education, Science and Technology of Roraima (IFRR/CAM)  
Email: is9525542@gmail.com



Correia Júnior et al. (1994) emphasized that, in medicine, products originating from plants occupy an increasing space in therapeutics. However, the rampant collection of native plants can lead to the extinction of important species. The identification and information obtained on the use of medicinal plants can be used to guide research with the purpose of refining or optimizing current popular uses, developing low-cost therapeutic preparations, or isolating active substances that can be synthesized by the pharmaceutical industry (Amorozo, 1996).

According to the World Health Organization (WHO), traditional medicine can be defined as "diverse practices, approaches, knowledge and beliefs that incorporate plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises applied individually or in combination for the maintenance of well-being, treatment, diagnosis and prevention of diseases" (WHO, 2002 apud CASSINO, 2010). The valorization and maintenance of this knowledge becomes essential to the knowledge of the local flora and can contribute to the proper management of native species, thus promoting sustainability (MARQUES-DE-SOUZA, 2014).

This work aimed to implement a permanent area for the production of medicinal plants, native and exotic, especially those at risk of extinction due to deforestation, construction of side roads linked to agrarian reform settlements and wood extraction without criteria and make it available for use in the local community and also making this area of cultivation of medicinal plants an area of didactic study.

## **METHODOLOGY**

The experiment was conducted from April to December 2019, in the municipality of Amajari - RR, in the IFRR/CAM area. The soil of the experimental area is the dystrophic latosol, sandy textures, smooth relief. The chemical analysis of the soil sample composed of the area to be used, collected in the 0-0.20 m depth layer, was carried out in the soil laboratory of the IFRR Campus Novo Paraiso, whose results are: pH in H<sub>2</sub>O 5.62; P and K (in Mehlich 1) 2.04 and 28 mg/dm<sup>3</sup> respectively; Ca<sup>+2</sup> + Mg<sup>+2</sup> and Al<sup>+3</sup> (in KCl) 2.3 and 4.05 Cmolc/dm<sup>3</sup> respectively; H+Al (in calcium acetate) 2.06 Cmolc/dm<sup>3</sup>.

Four beds of each species were cultivated, the beds have an average size of 3.0 x 2.0 meters, totaling an average useful area of 500 square meters. For each species, seedlings were produced in plastic bags with width, height and thickness of 8x15x0.5 cm. After an average of 15 to 30 days, the seedlings produced in these plastic bags were transferred to a definitive location

in the cultivation area. The area was previously prepared and fertilized only with compost produced on site. The compost was prepared based on the remains of leaves, branches and cattle manure from the region.

The cultivated species were herbs, shrubs and medicinal trees of various species, native and exotic. The substrates for the production of the seedlings was the basis of compost produced by the students participating in the project, from the Ovídio Dias de Souza State School together with the IFRR/CAM student. Concomitant with the production of seedlings, the student taught the participants how to produce natural mixtures such as: Bordaleza mixture, calcium sulfur mixture, garlic-based mixture, rue among others that could be used in case of need to control some pathogens. Once the seedlings were ready, a permanent cultivation area was prepared on the premises of the Ovídio Dias de Souza State School. In the implantation of the seedlings, limestone at a dose of 300 grams per hole and compost at a base of 3 liters per hole were used. Study workshops on cultivation, use and dangers of medicinal plants were held for the participating community.

## RESULTS AND DISCUSSION

19 species were implanted, together with the project participants themselves and the IFRR/CAM student, including native and exotic species, table 1 and figure 1.

Table 1. Medicinal plants implanted in the area of IFRR Amajari-RR: botanical families, scientific and popular names. IFRR/CAM Amajari-RR 2021.

Acanthaceae	<i>Justicia pectoralis</i> Stenophylla Leon.	Pará clover
Asteraceae	<i>Mikania glomerata</i> Spreng	Guaco
Amaranthaceae	<i>Alternanthera brasiliana</i> (L.) Spach	Brazilian Perpetua
Amaranthaceae	<i>Dysphania ambrosioides</i> (L.) Spach	Mastruz
Asphodelaceae	<i>Aloe vera</i> (L.) Bum. L.	Aloe
Bignoniaceae	<i>Fridericia chica</i> (Bonpl.) Lohm.	Crajiru
Boraginaceae	<i>Cordia leucocephala</i> Moric.	The throne of the throne
Celastraceae	<i>Maytenus ilicifolia</i> Mart.ex Reiss.	Espinheira santa
Convolvulaceae	<i>Ipomoea</i> sp.	Mashed potatoes
Crassulaceae	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Pirarucu tongue
Fabaceae	<i>Stryphnodendron</i> sp.	Barbatimão
Lamiaceae	<i>Mentha</i> cf. <i>suaveolens</i> Ehrh.	Peppermint
Lamiaceae	<i>Ocimum basilicum</i> L.	Basil
Lamiaceae	<i>Melissa officinalis</i> L.	Lemon Balm
Lamiaceae	<i>Ocimum campechianum</i> Mill.	Alfavaca
Monimiaceae	<i>Peumus boldus</i> (L.) Molina	Bilberry
Phyllanthaceae	<i>Billanthus Niru</i> (Schumach. & ton.) Leenri	Stone breaker
Punicaceae	Hairy purslane L.	Pomegranate
Ruttaceae	<i>Ruta graveolens</i> L.	Rue

Source: Elaborated by the author

There were 20 students from the Ovídio Dias de Souza State School who participated in practical classes in which the species were implanted in the school. They, together with the IFRR/CAM student, in practical classes were responsible for the collection of plants, production of seedlings, production of compost, preparation of beds, cultivation until the establishment.

In addition to the practical classes, 10 workshops were held during the period, in which the student responsible for the project gave lectures and a discussion circle on how to use medicinal plants and their dangers (Chart 2).

Table 2. Report by the students of the Ovídio Dias de Souza State School, of more frequent use, of some medicinal plants from the Amajari-RR region. IFRR/CAM. Amajari - RR 2021

Popular name	Uses	Adverse effects
Rue	With therapeutic indications in menstrual disorders, venous insufficiency and skin inflammation in the form of oral infusion, and in the fight against pests such as flies and lice.	The ingestion of large amounts of rue can cause intoxication, tremors, convulsions, hemorrhage, vomiting, cramps, diarrhea, decreased heart rate, pupil contraction and sleep.
Aloe	The main biological activities attributed to the gel are: antimicrobial, antioxidant, anti-inflammatory, immunomodulatory, healing, moisturizing, among others. Its use in cosmetics is justified due to some biological activities evidenced, with emphasis on moisturizing, antioxidant, anti-inflammatory, healing and antimicrobial properties.	Its extremely toxic composition can cause nephritis and hemorrhage leading to death.
Barbatimão	Used in the treatment of some pathologies such as: gonorrhea, leukorrhea, diarrhea, ulcers, vaginal hemorrhages, impinges, as well as, it can be used as an anti-inflammatory, healing, astringent, hemostatic, antiseptic and antihypertensive agent.	It is important not to drink more than one liter of barbatimão tea per day. The seeds are toxic and should not be ingested. Common problems associated with excessive consumption of the plant are stomach irritation, heartburn, and ulcers.
Mashed potatoes	It is used in folk medicine in various regions as a purgative. The syrup made from the tuber can be used against coughs and bronchitis (Agra et al., 2008). Potatoes are used as a dewormer for humans and animals (Gomes et al., 2010). The deworming effect has been tested in goats, revealing a strong reduction in helminth infestation after 30 to 60 days of treatment (Almeida et al., 2007). The plant is used as an anti-hemorrhagic in gastroenteritis, hemorrhoids, dropsy, syphilis, as well as diseases of the digestive system (Almeida-Neto et al., 2015).	Nausea, spasmodic pain, and gastroenteritis often appear.
Crajiru	Traditionally used in the treatment of infections in the liver, stomach, uterus and intestine, widely used by folk medicine to treat diseases such as anemia, infections and ulcers.	The toxicity of Crajiru is very low, with a mild side effect only with a dosage above 5g/kg per day.

The throne of the throne	Most frequent uses muscle pain, bruises, bruises, arthritis, rheumatism and arthrosis. Compared to the studies found, several ratify its potential as a topical anti-inflammatory, an indication validated by the National Health Surveillance Agency (ANVISA).	In vivo studies have shown that there is no related toxicity and there have been no reports of adverse effects.
Espinheira santa	The medicinal properties, scientifically proven, are related to gastritis and gastric ulcer problems.	Dry <u>mouth</u> , nausea and stomach pain, which subside with the discontinuation of the use of the medication.
Pirarucu tongue	Its use in traditional medicine is widely documented and its leaf extracts have anti-inflammatory, antifungal and antibacterial applications.	The leaf of fortune, pirarucu tongue should not be used for long periods of time or by people with reduced immune systems.
Guaco	It is widely used in the therapy of respiratory diseases, presenting expectorant, antitussive, and inti-inflammatory bronchodilator action.	Prolonged use can cause hemorrhagic accidents, due to the antagonism to vitamin K (Freitas, 2006).
Mastruz	Analgesic, Antiasthmatic, Carminative, Stomach and Vermifuge, digestive, treatment of colic and stomach pain. Recent studies also show the action of this plant in wound healing and bone metabolism, observing promising results as bone grafting.	Skin and mucous membrane irritation, headache, vomiting, nausea, palpitations, liver or kidney damage, visual disturbances, and seizures
Brazilian Perpetua	Effects of antiviral, analgesic, antimicrobial, anti-inflammatory, diaphoretic, antispasmodic, healing; The anti-inflammatory, analgesic, antimicrobial, antiproliferative actions of lymphocytes and inhibitor of the herpes simplex virus have been proven.	The internal use of this plant has not yet been established.
Stone breaker	It is used in urinary disorders, such as kidney stones, nephritis, cystitis and pyelitis (Teske and Tretii, 1994). This species is attributed with diuretic, bactericidal, antispasmodic, hypoglycemic, hepatoprotective, cholagogue and litholitic actions. It has proven activity against the hepatitis B virus (Teske and Tretii, 1994).	There are no conclusive reports on side effects to the human body, being a well-tolerated plant and considered to have low toxicity.
Pará clover	Cough, asthma, bronchitis, wheezing. Anti-inflammatory, Bronchodilator. rheumatism, headache, fever, abdominal cramps,	It can cause drowsiness, headache and nausea.

Source: Elaborated by the author

Figure 1. Photos of seedlings produced in the implementation of the project. Amajari – RR, 2021





Source: Elaborated by the author

Figure 2. Photos of seedlings produced in the implementation of the project. Amajari – RR, 2021





Source: Elaborated by the author

Through the workshops and lectures held, it was observed that in the region, due to the distance to the municipalities that have health and medical care centers, combined with the lack of financial resources and the lack of knowledge of the danger of indiscriminate use, some plants have their exacerbated use by the local population, as is the case of some species such as mastruz, aloe vera, quebra pedra, the latex of succuba - *Himatanthus sukuuba* (Spruce) Woodson (Apocynaceae) and the fruit of the noni - *Morinda citrifolia* L. (Rubiaceae), reported by students of the Ovídio Dias de Souza State School. A peculiar situation is also that of the user who is based on self-knowledge or indication of people without substantiated information, exposing himself to risks, especially those arising from the use of the wrong plant (GOMES, 2016; NASCIMENTO, PIMENTEL and ARAGÃO, 2017).



This work contributes to the increase of scientific knowledge of the medicinal species used in the local community, in addition to allowing the systematization of the information provided by the participants of the community itself. The way medicinal plants are used is largely internally and through tea (infusion), but also externally.

It was observed that the fact that most students report having a preference to use medicinal plants, perhaps due to the lack of any other way to maintain or recover their health, is, in a way, a positive aspect, because in addition to strengthening traditional practices regarding the use and traditional knowledge of medicinal plants, it is an activity that values the preservation of the local flora.

## **CONCLUSIONS**

The adoption of measures that favor the use of medicinal plants is something very important in the community and in the rescue of traditional knowledge. The construction of the community garden of medicinal plants encouraged, in addition to cultivation, the transmission of information among students about the use of medicinal plants and their adverse effects on public health.

## **ACKNOWLEDGMENTS**

The authors thank the Federal Institute of Education, Science and Technology of Roriana, Amajari Campus - IFRR/CAM, the Ovídio Dias de Souza State School and the Academic Extension Scholarship Program/PBAEX/IFRR, for their support in conducting the work.



## REFERENCES

1. Agra, M. F., Silva, K. N., Basílio, I. J. L. D., Freitas, P. F., & Barbosa-Filho, J. M. (2008). Survey of medicinal plants used in the region Northeast of Brazil. *\*Revista Brasileira de Farmacognosia*, 18\*(3), 472-508.
2. Almeida, W. V. F., Silva, M. L. C. R., Faria, E. B., Atahayde, A. C. R., & Silva, W. W. (2007). Avaliação de plantas medicinais em caprinos da região do semi-árido paraibano naturalmente infectados por nematóides gastrintestinais. *\*Caatinga*, 20\*(3), 1-7.
3. Almeida-Neto, J. R., Roseli Farias Melo de Barros, R. F. M., & Silva, P. R. R. (2015). Uso de plantas medicinais em comunidades rurais da Serra do Passa-Tempo, estado do Piauí, Nordeste do Brasil. *\*Revista Brasileira de Biociências*, 13\*(3), 165-175.
4. Amoroso, M. C. M. (1996). A abordagem etnobotânica na pesquisa de plantas medicinais. In L. C. Di Stasi (Ed.), *\*Plantas medicinais: Arte e ciência. Um guia de estudo interdisciplinar\** (pp. 47-68). São Paulo: Editora da UNESP.
5. Cassino, M. F. (2010). *\*Estudo etnobotânico de plantas medicinais em comunidades de várzea do Rio Solimões, Amazonas e aspectos farmacognósticos de Justicia pectoralis Jacq. forma Mutuquinha (Acanthaceae)\** (Master's thesis, Universidade Federal do Amazonas).
6. Correia Júnior, C., Ming, L. C., & Scheffer, M. C. (1994). *\*Cultivo de plantas medicinais, condimentares e aromáticas\** (2nd ed.). Jaboticabal: FUNEP.
7. Freitas, T. P. (2006). *\*Avaliação dos efeitos de Mikania glomerata Sprengel e Mikania laevigata Schultz Bip. ex Baker (Asteraceae) no processo inflamatório induzido pela exposição aguda ao carvão mineral\** (Dissertation, Universidade do Extremo Sul Catarinense).
8. Gomes, R. V. R. S., Araújo, M. M., Gomes, E. N., Vilela, V. L. R., & Athayde, A. C. R. (2010). Ação antiparasitária in vitro dos extratos etanólicos de *Operculina hamiltonii* (batata de purga) e *Momordica charantia* (melão de são caetano) sobre ovos e larvas de nematóides gastrintestinais de caprinos do semi-árido paraibano. *\*Acta Veterinaria Brasilica*, 4\*(2), 92-99.
9. Instituto Brasileiro de Geografia e Estatística [IBGE]. (2022). *\*Características étnico-raciais da população: Classificação e identidades\**. Rio de Janeiro: IBGE. Disponível em: <https://tinyurl.com/yx9re6wc>. Acesso em 19 ago. 2022.
10. Lorenzi, H., & Matos, F. J. A. (2002). *\*Plantas medicinais no Brasil: Nativas e exóticas\**. Nova Odessa: Plantarum.
11. Marques-de-Souza, J. (2014). As plantas, os saberes e a sustentabilidade. In A. S. Flores & R. S. Rodrigues (Eds.), *\*Ensinando botânica nas florestas do sul do estado de Roraima\** (pp. 49-55). UERR Edições.
12. Organização Mundial de Saúde [OMS]. (2008). *\*Classificação estatística internacional de doenças e problemas relacionados à saúde (CID-10)\** (8th ed., 10th revision). São Paulo: Editora da Universidade de São Paulo.
13. Rabe, C., et al. (2005). Acute hepatitis induced by an Aloe vera preparation: A case report. *\*World Journal of Gastroenterology*, 11\*(2), 303-304.



14. Teske, M., & Tretii, A. M. (1994). \*Herbarium Compêndio de Fitoterapia\*. Herbarium.