

EFFECT OF AQUEOUS EXTRACT OF JUCÁ (*Libidibia ferrea*) NATIVE PLANT OF CAATINGA ON LETTUCE (*Lactuca sativa*) GERMINATION

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ABSTRACT: The objective of this work was to evaluate the allelopathic effect of jucá extract on lettuce germination and initial growth. The 50% extract showed the best results of germination percentage and initial growth. The results are promising, emerging as an option for lettuce crop, requiring further studies seeking an extract pattern for a possible new product.

Keywords: allelopathy, semiarid, native plant

EFEITO DO EXTRATO AQUOSO DE JUCÁ (*Libidibia ferrea*) PLANTA NATIVA DA CAATINGA SOBRE A GERMINAÇÃO DO ALFACE (*Lactuca sativa*).

RESUMO: Objetivou-se com esse trabalho avaliar o efeito alelopático do extrato do jucá sobre a germinação e o crescimento inicial do alface. O extrato a 50% evidenciou os melhores resultados de percentual germinativo e crescimento inicial. Os resultados são promissores, surgindo como opção para a cultura do alface, sendo necessário estudos mais aprofundados buscando um padrão de extrato para um possível novo produto.

Palavras-chave: alelopatia, semiárido, planta nativa

INTRODUCTION

Plants are in constant competition for biotic and abiotic survival factors, such as water, light, physical space and nutrients (FERREIRA; ÁQUILA, 2000). As they are autotrophic and immobile organisms, they have developed, over the generations, defense strategies, such as the production of certain substances, whether to defend themselves against insects that impair their growth and formation, or causing inhibition in the development of individuals of the same species. species or different species. This strategy and its effects are called allelopathy (DURIGAN; ALMEIDA, 1993; GATTI et al., 2004; TAIZ; ZEIGER, 2004).

The jucá is a native plant of the Caatinga Biome, which has a series of utilities exploited by rural people such as timber, medicinal and animal fodder. The search for alternatives to improve production conditions and reduce environmental impacts is constant. In agriculture, the greatest expenses come from mineral fertilizers, in addition to cats, these

bring impacts to the soil, seeking alternatives that minimize their use without decreasing productivity are necessary in the current situation of the country.

To determine the allelopathic potential of a plant, the technique of aqueous extracts has been used. This technique is considered the simplest, since one of the most used solvents is distilled water, followed by other organic solvents, such as ethanol and methanol. These tests are done with the aim of simulating what happens in nature. The incorporation of substances with allelopathic activity in agriculture may be an alternative to reduce the use of synthetic herbicides and mineral fertilizers without harming the environment. Thus, knowledge about this plant activity can be positively exploited in agricultural sectors in a sustainable way.

MAIN GOAL

To evaluate the allelopathic activity of the jucá leaf extract on lettuce germination.

Specific objectives

Obtain a product of natural origin that reduces costs with mineral fertilizers.

Contribute with devices that reduce impacts on the environment.

METHODOLOGY

The test was carried out in the facilities of the science laboratory of E.E.M Professor Arruda in the city of Sobral – CE 3° 41'S and 40° 20'W. The climate in the region is BShw, according to the Köppen classification, with a rainy season from January to June. The average annual temperature is 28°C and the average precipitation is 759 mm per year. The experimentation took place during the month of May 2019.

The substrate used was germinester paper properly sterilized in a forced air oven at 65 °C for 60 minutes, discs were made with the paper and placed in petri dishes. The seeds used in the experiment were *Lactuca sativa* lettuce.

For the preparation of the aqueous layer, catingueira leaves collected in the community of Salgado dos Machados in the municipality of Sobral - CE were used, the leaves were

washed in running water for 1 hour, weighed 200 g, crushed in 100 ml of distilled water, constituting the crude extract (100%). The seeds used for this work were lettuce.

The experimental design used was completely randomized with 4 treatments and 4 replications, with 25 seeds per replication. The treatments were:

Distilled water (Witness 0% of the extract)

25% *Libidibia ferrea* extract

50% *Libidibia ferrea* extract

100% *Libidibia ferrea* extract

The experiment was set up in petri dishes on germitest paper substrate. The plates were left under the laboratory benches in an isolated place at a temperature varying between 25 °C and 30 °C without photoperiod control. The substrate was moistened at a rate of 3 times the dry weight of the paper (3 mL), with distilled water (control) or with the extracts. The counting started on the 3rd day after sowing, and daily observations of germination were made, up to 15 days after sowing. The addition of distilled water and extracts was made every 48 hours, and the substrates were changed so as not to change the concentrations. Germinated seeds that showed radicle emergence were considered. The variables analyzed were: Percentage of germination (%). All parameters were analyzed by analysis of variance (F test) and the means were compared by Tukey's test at 5% probability.

RELEVANCE OF THE PROJECT

A considerable part of the problems related to the environment are linked to human activities, among which one that has gained prominence is agriculture due to actions such as deforestation, inclusion of monocultures, use of fertilizers and pesticides (CANTARELLA, 2001), The search for alternatives that reduce these impacts is of paramount importance for the conservation of the environment and guaranteeing the maintenance of the balance of natural resources. Plant allelopathy is an activity little explored in this environment but it can be used as an alternative as an agricultural pesticide and inputs for the development of crops, studies that aim to evaluate allelopathic effects of plants are important in the search for alternatives that help to maintain productivity and, above all, conserve the environment.

PROJECT/RESEARCH IMPACT

This research showed a promising potential of Jucá leaf extract in maximizing lettuce germination, based on this principle, further studies are necessary in the search for a pattern, being able to prescribe a potential product that will reduce costs in addition to contributing to the environment. environment in view of its natural origin.

SEARCH RESULTS

Table 01: Lettuce seed germination index on the effect of aqueous extract de folhas de catingueira.

plant extract	germination (%)
T 0% from the extract	8,4 bc
25% from the extract	8,9 ab
50 % from the extract	9,1 a*
100% from the extract	8,1 c
CV (%)	2,23

* Means followed by the same letter do not differ at the 5% level by Tukey's test

The results expressed in table 01 show that the treatment at 50% of jucá leaf extract was statistically superior, where the largest number of germinated seeds was in this treatment the data are in line with those of Lorensi et al 2017 which obtained similar results when applied extract of catingueira (*Poiciana pyramidales*), a plant also native to the caatinga and belonging to the same family as the jucá, a plant studied in this work.

CONCLUSION

Jucá aqueous extract interferes with lettuce seed germination, with a higher percentage in the concentration of 50% as the concentration increases, germination drops significantly.

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