



PHYTOCHEMISTRY AND *in vitro* BIOLOGICAL ACTIVITY OF BIOACTIVE COMPOUNDS FROM MEDICIANL PLANTS - POSTER: 76

INFLUENCE OF THE METHANOL EXTRACT AND FRACTIONS OF *Smilax brasiliensis* Sprengel on development *in vitro* of *Nicotiana tabacum*

Paula Avelar Amado^{1,2*}, Ana Hortência Fonsêca Castro¹, Luciana Alves Rodrigues dos Santos Lima^{1,2}

¹ Biotechnology Pos-Graduation Program, Federal University of São João del-Rei, MG, Brazil.

² Phytochemistry Laboratory, Federal University of São João del-Rei, MG, Brazil

*paulaavelar28@yahoo.com.br

Keywords: In vitro germination, Brazilian Cerrado, Tobacco

Introduction: Allelopathy is defined as a chemical-ecological phenomenon, in which secondary metabolites produced by a plant species are released and interfere with the germination and/or development of other plants in the same environment; this type of interference can be beneficial or harmful [1]. *Smilax brasiliensis* is a medicinal species of the Brazilian Cerrado. This work aimed to evaluate the influence of the extract and fractions *S. brasiliensis* leaves on development *in vitro* of *Nicotiana tabacum*.

Methods: The methanol extract was obtained by extraction in Soxhlet and the fractions by partition in dichloromethane and ethyl acetate [2]. *N. tabacum* seeds were disinfected with 70% alcohol and treated with NaOCl and a drop of Tween 20 for 30 minutes while stirring. After, the seeds were placed on basal medium MS [3], and were kept in a growth chamber at 27 ± 1 °C, for 60 days. The percentages of germinated seeds and contamination of the medium and seeds were observed at 7 days intervals. Methanol extract (ME) and dichloromethane (DCM), ethyl acetate (AC) and hydromethanol (HM) fractions were tested at concentrations of 250, 500, 750 and 1000 µg/mL, and negative control, MS medium supplemented with dimethyl sulfoxide.

Results and discussion: The germination percentage varied from 40 to 100% (Figure 1). The percentage of contamination observed varied from 10 to 30%. There was statistical difference when compared to germination and contamination of the tested samples with the negative control.

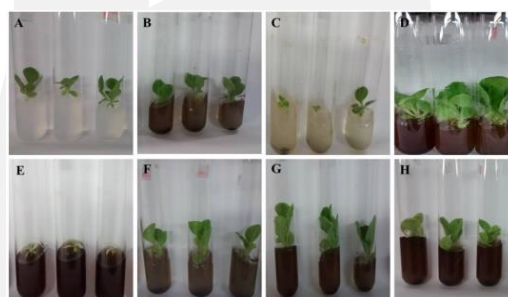


Fig. 1. Germination of tobacco seeds treated with methanol extract and fractions of *S. brasiliensis*. (A) Negative control; (B) ME extract 250 µg/mL; (C) DCM fraction 500 µg/mL; (D) AC fraction 250 µg/mL; (E) AC fraction 500 µg/mL; (F) HM fraction 250 µg/mL; (G) HM fraction 500 µg/mL; (H) HM fraction 750 µg/mL. Seedlings after 60 days of germination.

Conclusion: With the studies obtained so far, the methanol extract and fractions indicated promising results for the germination and development of tobacco seeds, demonstrating that the samples evaluated, in their majority, performed better in relation to the negative control tested. Future studies should evaluate the possibility of using *S. brasiliensis* as plant hormones.

Acknowledgment: UFSJ, CNPq, FAPEMIG and CAPES.

References

- [1]. Cheema, Z. A., et al. (2013). *Allelopathy: Current Trends and Future Applications*. Springer.
- [2]. Amado, P. A., et al. (2020). Phenolic compounds: antioxidant and larvicidal potential of *Smilax brasiliensis* Sprengel leaves. *Natural Product Research.*, 34 (17), 2545-2553.
- [3]. Murashige, T. & Skoog, F. (1962). A revised medium for rapid growth and bioassays with tobacco tissue cultures. *Physiologia Plantarum*, 15 (3), 473-497.