



## CHEMICAL COMPOSITION STUDIES OF *Endlicheria paniculata* ESSENTIAL OIL CAUSED BY SEASONAL VARIATIONS

Luiz Everson da Silva \*<sup>1</sup>, Camila\_Confortin <sup>1</sup>, Andressa Amaral Bach<sup>1</sup>, Wanderlei do Amaral<sup>1</sup>.

<sup>1</sup>Universidade Federal do Paraná, Programa de Pós-Graduação em Desenvolvimento Territorial Sustentável/PR, Brasil. \*luiever@gmail.com.

### INTRODUCTION

Investigating the influence of seasonal variations on biological activities is important for pharmacological studies and metabolic engineering. Therefore, this study was conducted to determine the variation of the chemical composition of essential oils obtained from *Endlicheria paniculata* leaves, collected at different stages of plant development.

### MATERIAL AND METHODS

The plant material was dried at 40 °C using an electric dryer with air circulation and submitted to hydrodistillation. The oil based on dry material was then characterized by means of GC-FID (quantification and retention index) and GC-MS (computing library search)(Adams, 2017, Allured pub).

### CONCLUSIONS

The knowledge of the changes in the chemical composition of an essential oil caused by seasonal variations is closely associated with the evaluation of its pharmacological properties and also has important applications in the area of metabolic engineering, such as in attempts to improve the yield and facilitate the accessibility of a particular compound.

### RESULTS

Studies investigating the variations in the chemical composition of essential oil may offer a strategy to produce a compound or a group of compounds of interest to industries with a specific pharmacological focus. In this context, *Endlicheria paniculata* has shown different yields throughout the seasons: winter 0.70%, autumn 0.86% spring 0.84% and summer 0.91%. In winter the essential oil sample has shown as main constituents Bicyclogermacrene (31.77%), Germacrene D (15.50%) and (*E*)-Caryophyllene (13.85%). On the other hand, in autumn season the amount of Bicyclogermacrene decreased (28.35%) with the appearance of  $\gamma$ -Muurolene (17.10%) and dihydro-Aromadendrene (15.25%) and  $\alpha$ -Pinene (15.20%) and  $\beta$ -Pinene (10.56 %). The most abundant constituent was the oxygenated sesquiterpene Santalene (22.74%), followed by  $\beta$ -Pinene (17.33%) and Hexenyl-phenyl acetate (11.76%),  $\alpha$ -Santalene (9.64%) and  $\alpha$ -Pinene (9.29%). The antibacterial assay demonstrated that *S.aureus* was sensitive to essential oil in all season with a halo mean among 7-11 mm.

### ACKNOWLEDGMENTS

CNPq.

### REFERENCES

ADAMS, R. P. (2017). Identification of essential oil components by gas chromatography/mass spectrometry, ed. 4.1, Allured Pub. Corp.