



## A STUDY ABOUT ESSENTIAL OILS OF BASIL PLANT OBTAINED AT DIFFERENT SEASONS IN SOUTH OF MINAS GERAIS

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**Abstract:** *Ocimum basilicum* is a plant that belongs to Lamiaceae family and its essential oil (EO) is an important source of linalool and methyl chavicol, which may be responsible for the antioxidant and antimicrobial activities showed by basil plant. The EO is produced by the metabolic pathway of the plant and is affected by many factors, as climatic conditions, location, nutrition, luminosity and plant age. Its composition can vary by the stress environment [1]. This study was carried out to describe the chemical composition and antimicrobial activity of the EO from *Ocimum* species collected in Alfenas, state of Minas Gerais, in period between November/2013 to March/2015. The EO (GB1, GB2 and PB) were obtained from the aerial parts of three *Ocimum* species by hydro-distillation and their chemical composition was analyzed by gas chromatography coupled to mass spectrometry (GC/MS). Antimicrobial activities were determined through minimum inhibitory concentration (MIC) assays against several human pathogens. This work indicated that the studied plants of Alfenas-MG belong to the linalool chemotype and each one has a different subtype. It was observed a chemical composition disparity between the oils of each plant and variations of the constituents and their proportions in the same plant according to the season of harvest, which also affects its biological activity. Also, the EO showed moderately activity against pathogens assays (Table 1). In conclusion, antimicrobial activity showed by basil EO and the observed chemical variations motivate a better comprehension of the relation between oil constituents and their bioactive potential, which are affected by many biotic and abiotic factors.

**Table 1.** The MIC ( $\mu\text{g/mL}$ ) to essential oil collected at different seasons.

Essential Oils	Date	<i>S.aureus</i>	<i>B.cereus</i>	<i>L.monocytogenes</i>	<i>Salmonella</i>	<i>P.aeruginosa</i>
<b>GB1</b>	nov-13	200-400	>400	200-400	>400	200-400
	fev-14	200-400	>400	200-400	>400	200-400
<b>GB2</b>	jun-14	200-400	200-400	200-400	200-400	200-400
	oct-14	200-400	<b>100-200</b>	200-400	200-400	200-400
	nov-14	200-400	200-400	200-400	200-400	200-400
	dez-14	200-400	<b>100-200</b>	200-400	200-400	200-400
	mar-15	>400	>400	>400	>400	>400
<b>PB</b>	fev-14	200-400	>400	200-400	>400	200-400
	jun-14	200-400	>400	>400	>400	200-400
	dez-14	>400	200-400	>400	>400	200-400

### Reference:

[1] Ijaz, A., Anwar, F., Tufail, S., Sherazi, H., & Przybylski, R. 2008. Chemical composition, antioxidant and antimicrobial activities of basil (*Ocimum basilicum*) essential oils depends on seasonal variations. Food Chemistry, 108(3), 986–995.

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