EFFECT OF THE VOLATILE SECONDARY METABOLITES OF *MONARDA DIDYMA* L., *LAMIUM ALBUM* L. AND *MYRRHIS ODORATA* L. PLANTS AGAINST MICROMYCETES OF INDOOR ENVIRONMENTS OF ANIMALS

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Abstract. The aim of this study was to carry out quantitative and qualitative analyses of essential oils, determine the in *vitro* antifungal activities of essential oils against fungi present in animals indoor environments. Quantitative and qualitative analyses of essential oils of *Monarda didyma* L., *Lamium album* L., and *Myrrhis odorata* L. obtained by the supercritical carbon dioxide extraction method were carried out using gas chromatography with mass spectrometric detection. The minimal inhibitory concentrations were determined in *vitro* by means of two methods, namely the standard method of broth dilution for antifungal susceptibility testing and the micromycetes inhibition by volatile compounds assay against some fungi dominant in the indoor environments. Using broth dilution method, essential oil of *Lamium album* L., showed minimal inhibition concentration (MIC)>25 (%v/v), $P>0.05$. Essential oils from *Monarda didyma* L. and *Myrrhis odorata* L. showed MIC values 0.5-15 (%v/v), $P<0.05$. The results revealed that the antifungal activity of essential oils depended on the assay used. The inhibiting effects of essential oils in vapour phase were generally higher than those in liquid phase MIC=0.05-23.0 (%v/v). According to both methods, *Monarda didyma* L., *Myrrhis odorata* L., and *Lamium album* L. essential oils were found to be of wide spectrum of activity against all fungi tested.

Keywords: plant essential oils, antifungal activity, indoor environment, poultry, broiler, *Monarda didyma* L., *Myrrhis odorata* L., *Lamium album* L.