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Phytochemical study of three aromatic plants, *Mentha piperita*, *Eucalyptus camaldulensis* and *Cymbopogon citratus*, for a biopesticide development

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Aromatic plants are used most of time for their essential oils. Nevertheless, the aqueous extract and the solid residue after the hydrodistillation content bioactive compounds, which can be valorized. The aim of this study was to analyze the aqueous extract and the solid residue of three aromatics plants namely *Mentha piperita* L, *Eucalyptus camaldulensis* and *Cymbopogon citratus* for biopesticides development. After the hydrodistillation of the plant material, the mixture is filtered and the aqueous extract is obtained. The solid residue is then macerated with ethanol to afford ethanol extract. Both extracts of each plant were subjected to phytochemical analysis by Thin Layer Chromatography for flavonoids characterization, since flavonoids are known to have biopesticide activity. This method employed aluminum plates precoated with silica gel G60F254 as stationary phase. The solvent system consisted of butanol- acetic acid-water (13:3:5, v/v/v). The extracts were also investigated for their total phenolic and total flavonoid contents by the Folin-Ciocalteu and aluminum chloride methods respectively. Their antioxidant activity has been study by the 1, 1-Diphenyl-1-picrylhydrazyl (DPPH) method. The flavonoids analysis by TLC showed that all the extracts content flavonoids molecules with retention factor (Rf) varying from 0.52 to 0.86. The quantification showed that the ethanolic extract of *Mentha piperita* has the highest total phenolics, flavonoids and antioxidant power, with respectively 150.91 ± 18.25 mg Gallic Acid Equivalent/g of dried extract, 121.20 ± 14.47 mg Quercetin Equivalent/g of dried extract and DPPH radical inhibition of 78.28%. The extracts are found to be rich in polyphenols, particularly in flavonoids and may have biopesticide activity.

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