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**ANTIMICROBIAL ACTIVITY OF AZOREAN *CRYPTOMERIA JAPONICA* ESSENTIAL OILS**C. Moiteiro<sup>1</sup>, S. Feio<sup>1</sup>, R. Rojas<sup>2</sup>, H. Bragança<sup>3</sup><sup>1</sup>*Instituto Nacional de Engenharia, Tecnologia e Inovação, I.P., DTIQ, Estrada do Paço do Lumiar, Ed. F, 1649-038 Lisboa, Portugal*<sup>2</sup>*Laboratórios de Investigación y Desarrollo, Facultad de Ciencias y Filosofía, Universidad Peruana Cayetano Heredia, Lima, Perú*<sup>3</sup>*Instituto Nacional de Recursos Biológicos I.P., Quinta do Marquês, 2780-159 Oeiras, Portugal*

*Cryptomeria japonica* D. Don wood production is of great economic importance in the Azores, having a high value as a building material, furniture and also as an ornamental tree. Every year Azorean *C. japonica* wood industry generates a large amount of residues (bark, wood and aerial parts), for example the average wood wastes derived only from sawmills wood processing is around 30% [1].

Essential oils of different plant species are valuable secondary metabolites mixtures that have been widely used in cosmetic, fragrances, food, aromatherapy and pharmaceuticals industries due partly to their antimicrobial, antibacterial, antiviral and antifungal properties [2, 3].

The chemical composition of the essential oils extracted from wood residues of this species was undertaken. In addition, the oils biologic activity's was evaluated against wood deteriorating fungi and human pathogenic bacteria. The results obtained are reported showing that *Botrytis cinerea* was inhibited by all essential oils (MIC 100 µg/mL) tested with fungistatic activity; *Fusarium* sp. and *Cryphonectria parasitica* fungi showed resistance towards all the samples tested; all the essential oils exhibited moderate activity against the wood surface contaminant *Trichoderma harzianum* and the human pathogenic *Streptococcus aureus* and *S. faecium* (MIC 100-200 µg/mL); essential oils of leaves (MIC 25-50 µg/mL) were more active than those of the heartwood (MIC 50-200 µg/mL) against *M. tuberculosis* H<sub>37</sub>Rv and a clinical isolate multidrug-resistant strain (MDR). The main compounds isolated from the essential oils of the aerial parts, (+)-phyllocladene and *ent*-kaur-16-ene, showed a good activity against MDR strain (MIC 12.5 µg/mL) inversely, were inactive against all the others tested microorganisms.

The activities observed for *C. japonica* essential oils illustrate the potential enclosed in these bio-products. The bio-valorization of the wastes produced by *C. japonica* wood industry in Azores Archipelago, until now only seen as disposable, can represent an extremely important commercial advantage for the islands economy.

**References**

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