EVENT ABSTRACT

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# Extraction of essential oils from native plants and algae from the coast of Peniche (Portugal): antimicrobial and antioxidant activity.

Carlos Pena[1], Teresa M. Mouga[1], Maria M. Sampaio[1] and Clélia N. Afonso[1*]

[1] School of Tourism and Maritime Technology, GIRM - Marine Resources Research Group, Polytechnic Institute of Leiria, Portugal

Coastal areas are highly complex and dynamic ecosystem of interface between land, sea and atmosphere, which also suffer biotic influences. These areas play several important ecological functions, and here we can find an enormous biodiversity. The coastline of Portugal features a high number of endemic flora and vegetation with the potential to provide functional compounds that may provide physiological benefits at nutritional and therapeutic levels, as sources of bioactive substances with antimicrobial, antioxidant, antifungal, antitumalr and anti-inflammatory activity. Among these compounds, we find essential oils, also known as volatile oils, which are a result of secondary metabolism of aromatic plants, containing a large number of substances with varied chemical composition that can be obtained by different methods of extraction. The aim of this study was to extract essential oils of native plants and seaweeds from the coast of Peniche by hydrodistillation in Clevenger apparatus, with optimization of the purification process. Extracted essential oils were tested as to their ability as antibacterial and antifungal agents, and also as antioxidants. The plants studied for this purpose were *Inula chritmoides* L., *Juniperus phoenicea* subsp. *turbinata* (Guss.) Nyman, *Daucus carota* spp. *halophilus* and the seaweeds *Fucus spiralis* L., *Codium tomentosum* Stackhouse, *Stypocaulon scoparium* (Linnaeus) Kützing and *Plocamium cartilagineum* (Linnaeus) P.S.Dixon. The antimicrobial ability was tested in two bacteria species, *Bacillus subtilis* and *Escherichia coli* and in the yeast *Saccharomyces cerevisiae*, using standard procedures. The antioxidant potential was evaluated and from the results obtained, we can conclude that the essential oils extracted by the hydrodistillation method of plants and algae contain bioactive compounds present in its constitution with interesting bio-activity that can offer significant benefits and biotechnological relevance.

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**Keywords:** Hydrodistillation, ; Essential oils, ; Antioxidant activity, ; Antimicrobial activity, ; Bioactive compounds

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*** Correspondence:** Prof. Clélia N Afonso, School of Tourism and Maritime Technology, GIRM - Marine Resources Research Group, Polytechnic Institute of Leiria, Peniche, 2520-641, Portugal, clelia@ipleiria.pt