



Environmental impact generated by the effluents from the extraction process by steam distillation of essential oils.

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The extraction process by steam distillation of essential oils is the most widely used process in the industry of this segment, mainly because of its simplicity and low cost (1). Studies involving this process analyze and evaluate chemical compositions, quality and the applications of various plant sources. Nonetheless, the extraction process under discussion has not been evaluated with environmental focus yet. The globalized world has the need for studies on the variable environmental for its survival (2). Therefore, this study aimed at studying the environmental impact caused by effluents from the extraction process by steam distillation of the essential oil from two aromatic plants: *Rosmarinus officinalis* L. and *Pinus elliottii* Engelm. The effluents are one of the critical issues in environmental impact assessment, since their generation is inherent in the activity or production processes (3). The effluents are generated in two stages of the process: an effluent is located within the extraction vessel after the end of the process; the other one is a result of the liquid-liquid separation in the final stage of the essential oil processing, also known as hydrolate. The effluents were characterized by analysis of environmental standards according to CONAMA 430/2011 and 128/2006 CONSEMA resolution, as well as CONAMA 357/2005. Hence, it was possible to divide these analyses by studying the following physico-chemical parameters: pH, dissolved oxygen, chemical oxygen demand, biochemical oxygen demand, total organic carbon, color, turbidity, electrical conductivity, ammoniacal nitrogen, nitrate, nitrite, suspended solids, dissolved solids and total solids. The results show that the parameters linked to organic matter (COD, BOD and TOC) of the effluents do not meet the requirements of current legislation, thus demystifying the fact that the waste of processes applied to natural products are not pollutants, since they present negative impacting potential on the environment. The experimental results of COD, BOD, and TOC found to effluents of rosemary and pine steam distillation processes were 9.812 mg.L⁻¹, 1.463 mg.L⁻¹, 750 mg.L⁻¹ and 20.928 mg.L⁻¹, 4.500 mg.L⁻¹, 2.100 mg.L⁻¹, respectively. Even though the hydrolate does not meet the environmental requirements, it is also possible to say that it does not characterize as an environmental problem, since some products have commercial application, such as the rosemary and pine hydrolates.

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