



# 7<sup>th</sup> INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

## Academic

“CLEANER PRODUCTION FOR ACHIEVING SUSTAINABLE DEVELOPMENT GOALS”

## Analysis of yield of Aroeira Vermelha fruit extract via solvent extraction - Factorial Planning 2<sup>3</sup>

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### Abstract

The main extraction processes function is the separation of components present in different materials. The isolation of different compounds, purpose of extraction, plays a prominent role in several industrial areas, including essential oils and essences in general. Therefore, the extraction process can be used to obtain substrates, which in this work will be aroeira vermelha (*Schinus terebinthifolius*) the raw material used demands of special interest of the industrial sector in the medicines and foods areas. Researchs are necessary for operational improvements in this area, due to the high added value of essential oils and essences as final product, extracted from this material, linked to the inputs minimization used on sustainability. Still, there is scope for using new solvents, with the aim of guaranteeing the sustainability of the process. In this sense, the present work has the objective evaluating the solid-liquid extraction process to obtain oils and essences from fruits of aroeira vermelha, using less aggressive solvents, seeking the procedure optimization. After obtaining the necessary raw material, the extraction procedure was carried out using the technique of extraction by solvents, hexane and ethanol, with humidity and maceration like process conditions. The results obtained were analyzed by the use of factorial design 2<sup>3</sup>, with the purpose of qualifying and quantifying the relevant variables statistically to obtaining better results. Better process conditions were verified using the solvent ethanol, with the raw material macerated, being the humidity condition irrelevant in this experimental procedure. Linked to the objectives of improvements and sustainable development and cleaner production, these results are satisfactory, considering the use of reusable solvents and optimization in the extraction processes due to the use of experimental planning.

*Keywords: Red Aroeira, Extraction, oils and essences, factorial planning.*