**EVALUATION OF COSMETIC ACTIVITY OF OPTIMIZED ANTHOCYANIN EXTRACTS FROM DIFFERENT WINE LEES**

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Wine lees (WL), a winery residue produced during fermentation, are a rich source of high value compounds such as polyphenols. Among polyphenols, anthocyanins (AC) are the most abundant compounds found in grapes and residues derived from the vinification process. The recovery of these natural colorants (AC) from WL has attracted much attention in recent years due to studies showing that the concentration of AC in WL is 10 times higher than in grape skins. AC have a special impact in alimentary, cosmetic and pharmaceutic industries due to their antioxidant, antimicrobial and/or anticarcinogenic properties. Additionally, the exploitation of these dregs leads to a sustainable growth of the wine industry.

Thus, this work aims to develop effective green extraction processes for the selective recovery of bioactive compounds, namely AC, from WL from first fermentation of red wine and Port wine. The influence of extraction parameters in conventional solid-liquid (S-L) extraction was studied and results show that the best conditions were a mixture of 50:50 (v/v) EtOH:H2O as the extraction solvent, a S-L ratio of 0.1 g/mL and a temperature of 25$^{o}$C. Besides, microwaves (MW) were applied as pretreatment to intensify the extraction of AC, leading to a significant improvement in the extraction yield (from 3.04 ± 0.03 mg malvidin equivalents (MLVE)/g dry lees (DL) to 4.45 ± 0.30 mg MLVE/g DL) as well as a substantial reduction in the extraction time (from 10 min to 90 s). Further, the cosmetic potential of WL conventional extracts and extracts obtained following MW pretreatment was evaluated. Antioxidant activity was evaluated by chemical assays (ORAC/HOSC/HORAC) and cell-based assays using keratinocytes (HaCaT) and fibroblasts (HFF). Inhibitory capacity of WL extracts towards enzymes relevant for skin ageing, such as tyrosinase, elastase and MMP-1, was also assessed. Red wine lees extract had the highest phenolic content, and therefore presented the highest antioxidant capacity. Also, this WL extract effectively inhibited enzymatic activities. Main phenolic compounds were identified by HPLC-DAD-MS and AC were shown to play a significant role in the bioactivity of WL extracts.

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