

Title: Nanofiltration of Cork Wastewaters and Their Possible Use in Leather Industry as Tanning Agents

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Abstract: Cork processing wastewater is a very complex mixture of vegetal extracts and has, among other natural compounds, a very high content of phenolic/tannic colloidal matter that is responsible for severe environmental problems. In the present work, the concentration of this wastewater by nanofiltration was investigated with the aim of producing a cork tannin concentrate to be utilized in tanning. Permeation results showed that the permeate fluxes are controlled by both osmotic pressure and fouling/gel layer phenomena, leading to a rapid decrease of permeate fluxes with the concentration factor. The rejection coefficients to organic matter were higher than 95%, indicating that nanofiltration has a very good ability to concentrate the tannins and produce a permeate stream depleted from organic matter. The cork tannin concentrate obtained by nanofiltration and evaporation had total solids concentration of 34.8 g/l. The skins tanned by this concentrate were effectively converted to leather with a shrinking temperature of 7 degrees C.

Author Keywords: Nanofiltration; Cork wastewater; Tannin; Tanning; Leather

KeywordsPlus: Processing Wastewaters; Integrated Process; Fentons Reagent; Waste-Water; Oxidation; UltraFiltration; Removal

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