

Extraction of aromatic compounds from water using a mixed solvent

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Abstract. The pollution of water in its various areas of existence (oceans, seas, rivers and groundwater) in the whole world in general and the third world countries in particular is a fact [1]. This pollution is either of industrial origin, agriculture or household wastes. The industry generates organic and inorganic pollutants such as hydrocarbons, pharmaceuticals and heavy metals. Agriculture generates pesticides, herbicides and household waste such as sanitary products and detergents [2]. The protection and the decontamination of water from these various effluents [3] is a challenge to be taken up by the scientists in general and the chemists in particular, so as pollution grows, ways to combat it have grown too. The present study, which is part of this objective, consists on the extracting of the aromatic compounds (phenol and salicylic acid) from the aqueous solution using the organic solvents and a mixture solvents (organic solvent + ionic liquid) at 303, 15 K and under the atmospheric pressure. Several parameters (temperature, pH and the nature of the solvent), were studied in order to evaluate their influence on the extraction of phenol and salicylic acid from water and to determinate the experimental conditions to obtain an optimal extraction. The values of the distribution, selectivity coefficients and the yield (%) [4], Indicate that the optimal extraction was obtained with octanol compared to dichloromethane (DCM), dichloroethane (DCE), at 303.15 K, and the mixed solvent (DCM + 1-ethyl-3-methylimidazolium hexafluorophosphate ([Emim][PF₆])) ameliorate the extraction of phenol and salicylic acid from an aqueous solution as showing in figs (1) and (2).

Keywords: Liquid-liquid extraction; ionic liquid, aromatic compounds.