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Liquid-Liquid Extraction of Cd(II) Metal ion using Trialkyl Phosphine Oxide Extractant

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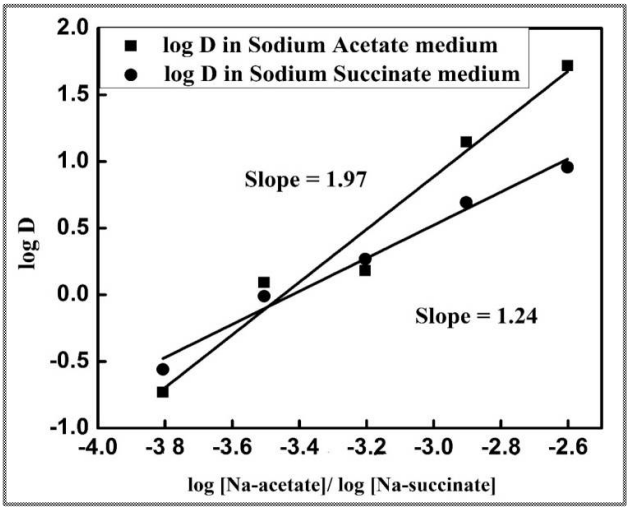
ABSTRACT

Solvent extraction method has been proposed for the extraction of Cd(II) using trialkyl phosphine oxide (Cyanex-923), in toluene from the salt of weak organic acid like sodium acetate and sodium succinate media. Various parameters such as the effect of pH, effect of Cyanex-923 concentration, effect of sodium acetate and sodium succinate concentration, effect of diluents, effect of time and stripping agent, composition of extracted species, effect of temperature, aqueous to organic volume ratio and effect of metal loading capacity. FTIR of the extracted species in the organic phase containing cyanex-923 were also studied. The proposed method was extended for extraction and separation of Cadmium(II) from spent Ni-Cd battery waste.

Graphical Abstract



Effect of sodium acetate/ sodium succinate concentration on Distribution ratio of Cd(II).

Keywords: Cyanex-923, Sodium acetate, Sodium succinate, Cd(II), Stripping, Ni-Cd battery