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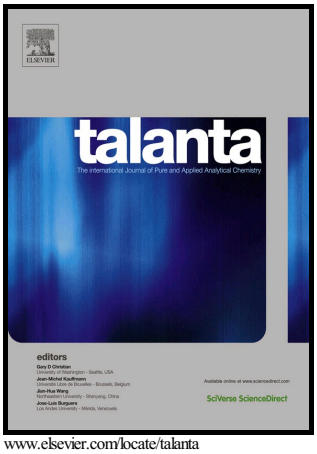

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Abstracts

Simple simultaneous determination of iron and manganese by sequential injection spectrophotometry using astilbin extracted from *Smilax china* L. root is proposed. It is based on the kinetic difference of the complexation of the ions and astilbin. With a simple sequential injection system, the simultaneous determination can be performed at pH 10 and can be followed at a wavelength of 440 nm. A throughput of 12 samples per hour was obtained with detection limits (3σ) of 0.05 mg L^{-1} iron(III) and 0.20 mg L^{-1} manganese(II), respectively. Application of the proposed system to real ground water sample was demonstrated. The results agreed with that of the atomic absorption spectrophotometric reference method.

KEYWORDS: Sequential injection; Iron; Manganese; Simultaneous determination; Astilbin; Ground water

1. Introduction

The utilization of groundwater in Thailand is increasing as a result of the rapid expansion of the city and its industrial production. In the future, groundwater analysis could become a focus of attention. Iron and manganese are the most common inorganic chemicals in groundwater as they naturally co-occur from weathering and leaching of metal-bearing minerals and rocks [1-2]. The maximum acceptable concentration of iron and manganese in drinking water proposed by the World Health Organization is 0.3 and 0.1 mg L^{-1}, respectively [3]. In comparison, drinking water in Thailand measures 0.5 and 0.3 mg L^{-1} for concentrations of iron and manganese, respectively [4]. Although these are not the levels that create health concerns, the presence of higher levels of iron and manganese in drinking water is a cause for investigation as this may produce a bad odor, a metallic taste and a