



Spectral Separation of Uranine, SRG Extra and Rhodamine WT Fluorescence in Binary Mixtures in Water Samples

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Abstract: The fluorescence ability of Uranine, Rhodamine WT and SRG Extra (Sulphorhodamine G Extra) enables their using as artificial tracers in the water system studies. These fluorescent can be injected in a water system to trace and determine water movements within the carsick system and underground waters. Related with the aims of the study one can inject one, two or more dyes in the different points of the same water system. The artificial tracer experiment in water system studies was first applied in our country; in the carstic system study of Mali me Gropa, in 2002. In four different places of the system were injected four artificial tracers in the same time. One can detect the maxima of the fluorescence of each tracer in water samples separating them from each other. The separation of the fluorescent dyes needs chemical supplementary treatments. In this paper only spectral separation of fluorescent dyes in binary mixtures and treatments based on pH-variations are described. The concentration and synchronous scan methods were used for the measurement of the Uranine, Rhodamine WT and Sulphorhodamine G Extra fluorescence by means of a Perkin Elmer LS 55 Luminescence Spectrometer. These results help us to decide which dyes can be used together in the same water system study. According to these results one can decide how to detect the maxima of their fluorescence in water samples, as well.

Key words: *Synchronous scan, Fluorescence Intensity (IF), Artificial tracer, Uranine, SRG, Extra, Rhodamine WT.*