J. Int. Environmental Application & Science, Vol. 6 (5): 636-640 (2011)

Influence of the UV Radiation on Rhodamine WT Fluorescence in Water Samples[#]

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Received June 11, 2011; Accepted December 15, 2011

Abstract: The fluorescence ability of Rhodamine WT enables its using as artificial tracer in the water system studies. The problem is dealt with in relation to applying Rhodamine WT (RhWT) to trace and determine water movements within the karstic system and underground waters. Rhodamine WT has been used as an artificial tracer for the first times in our country on Mali me Gropa system study (2002). UV radiation may induce photochemical decomposition of the dye which can cause large measurement errors on measurements of Rhodamine WT fluorescence intensity. This paper presents the obtained results in our lab studying the influence of UV radiation on Rhodamine WT fluorescence in water samples in different conditions so-called: 'in the light' and 'in the shadow'. We have studied this influence putting water samples containing Rhodamine WT in colorless glass bottle and brown glass bottle in each situation mentioned above. The concentration and synchronous scan methods were used for the measurement of Rhodamine WT fluorescence by the means of a Perkin Elmer LS 55 Luminescence Spectrometer. The photodecomposition results help us to determine if the dye can be used or not in a water system study with tracing experiment. According to these results we can decide the conditions of the transport and storing of the water samples, too.

***Key words**: Spectral Determination, Rhodamine WT, Fluorescence Intensity (I_F), Synchronous scan, artificial tracer.*

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[#] *This paper has been presented at ICE-2011 Tiran, Albania*