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Microplate and flow injection strategies for the spectrophotometric detection of zinc (II) with two complexing agents: PAR and Zincon

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Chemical contamination of the natural environment is a worldwide problem and is strictly connected with human activity. Due to this problem, it is necessary to develop new methodologies for the analysis of different metal species in environmental samples.

Zinc is one of the most common elements in the earth's crust. In the environment zinc can be found in the air, soil, and water compartments and it is present in all foods. It is essential for normal physiological processes of living organisms, acting in various biological systems in humans and is also a cofactor in diverse biochemical processes of bacteria and plants. In humans, the dietary reference values for zinc are 11 mg/day for men and 8 mg/day for women (1). Excessive amounts of zinc in the environment can have diverse origins including domestic, alloy manufacturing, clinical and pharmaceutical products.

There are several methods for the determination of zinc in natural waters. The present work was aimed at developing a microplate and flow injection assays, with spectrophotometric detection, using two different metal complexes: 4-(2-pyridylazo) resorcinol (PAR) and **2-carboxy-2′-hydroxy-5′-sulfoformazyl-benzene** (Zincon). The results obtained were compared in terms of sensitivity, reagents consumption and determination rate.

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