

## "ECO-FRIENDLY" ORGANIC MOLECULES FOR TRACE METAL DETERMINATION IN WATER SAMPLES

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Heavy metals are produced from natural and anthropogenic sources and can build-up in sediments, having significant environmental implications for local communities, as well as for river water quality. Heavy metals are known to be toxic and containing carcinogenic metalloids that can cause cancer in the skin, lungs and urinary tracts; cardiovascular disease; neurotoxicity; and diabetes. In this regards in the European Union (EU), a number of legislative and policy processes have provided further impetus to manage urban rivers in a more integrated way, by means of linking water quality improvements with ecosystem protection. Environmental impact of heavy metals are the industrial activities in the catchment area, municipal effluents and pollution from tributaries. Small amounts of elements as Sb, As, Cd, Cr, Co, Pb, Fe, Zn, Hg, Ni, Tl are common in our environment and diet, and some are necessary for good health, but large amounts of any of them may cause acute or chronic toxicity. The environmental analysis applies chemical sensors having the inherent ability to detect in real time analytes as cations, anions or small molecules in water systems. In this regards the aim of our work was synthesis, analytical characterisation and application of new eco friendly bio organic molecules as hemorphin derivatives for chemosensor activity towards  $\text{Cu}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Zn}^{2+}$  and  $\text{Co}^{2+}$  ions by determination of metal sensing abilities explored on absorbance and electrochemically. The voltamperometric and Uv-Vis properties of tested organic molecule and their complexes have been carefully investigated with different aspects of sensing behavior such as sensitivity, binding constant, stoichiometry and pH range. The results revealed that the sensors provided electrochemical and spectrochemical sensing excellent response with low limit of detection.

*Financial support from Bulgarian National Scientific Fund project KII-06-OIP 03/3 of the Ministry of Education and Science, Bulgaria is gratefully acknowledged.*