**Highly selective potentiometric electrodes for the determination of zinc(II) ions in drug samples**

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| **ABSTRACT**  Zinc contributes to many metabolic processes including gene expression, DNA synthesis, enzymatic catalysis, apoptosis, hormonal storage and neurotransmission in the human body [1]. Zinc is widely used in various industries and can pollute the environment. High doses of zinc can cause fever, stomach ache, vomiting, chills, nausea, renal and internal organs failures [2]. Thus, the determination of zinc in different samples is of high importance. Potentiometric ion–selective electrodes have advantages such as wide linear range, low detection limit, high selectivity, fast response time, low cost and high precision in the determination of various ions [3, 4]. In this study, PVC membrane potentiometric ion selective electrodes were prepared for the determination of zinc(II) ions using tetrabutylthiuram disulfide as ionophore. The prepared electrode exhibited a linear behaviour over a wide concentration range, as well as a high selectivity towards Zn(II) ions. Zinc(II)–selective potentiometric electrode had fast response time, good repeatability and high stability. It could work in a wide pH range without being affected by pH changes. Finally, the developed ion–selective electrode was successfully used for the determination of Zn(II) analysis in a drug sample.  **References:**   1. Truong-Tran, A. Q., Ho, L. H., Chai, F., & Zalewski, P. D. (2000). Cellular zinc fluxes and the regulation of apoptosis/gene-directed cell death. The Journal of nutrition, 130(5), 1459S-1466S. 2. Isildak, Ö., Özbek, O., & Yigit, K. M. (2021). Zinc (II)-selective PVC membrane potentiometric sensor for analysis of Zn2+ in drug sample and different environmental samples. International Journal of Environmental Analytical Chemistry, 101(14), 2035-2045. 3. Özbek, O., Çetin, A., Koç, E., & Isildak, Ö. (2022). Synthesis and sensor properties of a phenol derivative molecule: potentiometric determination of silver (I) ions. Electrocatalysis, 13(4), 486-493. 4. Özbek, O., & Isildak, Ö. (2022). Potentiometric determination of copper (II) ions based on a porphyrin derivative. Journal of the Chinese Chemical Society, 69(7), 1060-1069. |

# Keywords: Ion–selective electrodes, potentiometry, zinc(II), sensor.