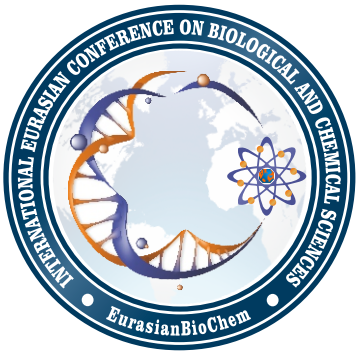

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ABSTRACT BOOK

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➢ **ORAL PRESENTATION**

Enzyme electrodes fabricated by dad type poly (2,5-di(furan-2-yl)thiazolo[5,4-*d*]thiazole) conducting polymer

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Abstract

Poly(2,5-di(furan-2-yl)thiazolo[5,4-*d*]thiazol) polymer was coated over a platinum electrode and new enzyme electrodes were produced that are not found in the literature. The formation of polymerization was shown by cyclic voltammetry. Kinetic parameters of immobilized polyphenol oxidase enzyme were determined. V_{max} and K_m were obtained as 0.028 ± 0.001 umol min^{1-} $electrode^{1-}$ and 669.68 ± 64.73 mM respectively. The effect of reaction conditions over enzyme activity were examined. The pH and temperature at which immobilized polyphenol oxidase enzyme showed the highest activity were found as pH 7.5 and 45 ℃. Amount of enzyme and gluteraldehyde immobilized to the electrodes were changed and in the examination, it was detected that it is sufficient to add 2x6 uL enzyme and 1x6 uL gluteraldehyde to the electrode. The activity of Pt/PTTzFr/PPO electrode was followed by 50 consequential measurements. It has been seen after 50 measurements that immobilized enzyme activity is 70%. As a result of shelf life examinations, it was determined that Pt/PTTzFr/PPO electrode lost 30% of its initial activity at the end of the 50th day and the remaining activity was 70%. Calibration graph was plotted for Pt/PTTzFr/PPO electrode (y = 0.0139x + 0.0479). LOQ value was calculated as 7.827 mg mL^{-1} and the working interval was found as 1.0 – 90.0 mg mL^{1-}. In total phenolic material analyses made with this electrode, the results found in waste water samples have also been confirmed by Folin-Ciocalteau method.

Keywords: Electrochemical polymerization, conducting polymer, enzyme immobilization, polyphenol oxidase, enzyme electrode.

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