

# A Glucose Oxidase Immobilized Electrode Based on Modified Graphite

Nina Dimcheva, Elena Horozova\* and Zinaida Jordanova

Department of Physical Chemistry, University of Plovdiv, 24 Tsar Assen St., Plovdiv – 4000, Bulgaria. Fax: (+35932) 635049. E-mail: horozova@argon.acad.bg

\* Author for correspondence and reprint requests

Z. Naturforsch. **57c**, 705–711 (2002); received March 25/May 6, 2002

Glucose Oxidase, Enzyme Electrode, Hydrogen Peroxide Electroreduction

Glucose oxidase (E. C. 1.1.3.4) was immobilized on electrochemically modified graphite to obtain an enzyme electrode. The working surface of the electrode was coated with gelatine to prevent desorption of the enzyme. In substrate (glucose) solutions the amperometric signal of the enzyme electrode was due to the electroreduction of  $\text{H}_2\text{O}_2$  generated in the enzyme layer. The linearity of the electrode response was found up to a substrate concentration of  $300\text{ }\mu\text{M}$  at a working potential of  $0\text{ mV}$  (vs.  $\text{Ag}/\text{AgCl}$ ). It was shown that the electrode did not respond to L-ascorbic and uric acid at that working potential. The response time was about  $2\text{ min}$ . The enzyme electrode keeps about  $50\%$  of its initial activity after a one-week storage at  $4\text{ }^\circ\text{C}$ .