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Studies of the Development of Optical Fiber Sensors for Biochemical Analysis*

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Abstract: An optical fiber sensor utilizing Thymol blue and an ion-exchange resin complex in a cellulose acetate membrane was developed. By monitoring several different chromophores of Thymol blue, the sensor could measure the pH of the solution from 1.0 to 12.0 with good reproducibility. An optical fiber glucose sensor utilizing a cellulose acetate membrane containing glucose oxidase, 2,7-diaminofluorene dihydrochloride, and sodium *N*-(3-sulfopropyl) -3,3″-5,5′-tetramethylbenzidine was developed. Reflectance, changes at 580 nm were large enough to trace changes in glucose concentration in physiological saline solution. Key Words: Optical fiber sensor.

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