

PENGEMBANGAN SERAT OPTIK HIDROGEL ALAMI UNTUK PEMANTAUAN GLUKOSA BERKELANJUTAN

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ABSTRAK

Continuous glucose monitoring is crucial to enable tight control of blood glucose concentrations in diabetes patients and intensive care cases. One of the methods employed for glucose detection is using fiber optics. This research aims to measure glucose levels with varying concentrations using fiber optics. Glucose solutions were varied into 6 different concentrations, including 5%, 10%, 15%, 20%, 25%, and 30%. The study's results indicate that as the concentration of the solution increases, the output intensity decreases. Higher sugar concentrations result in greater absorption of incident light, leading to a decrease in light intensity. Changes in the refractive index will alter the effective refractive index and reduce the output intensity. The study can serve as a valuable reference for future research endeavors aimed at further developing natural hydrogel optical fibers.

Kata Kunci: *Glucose Concentration, Optical Fiber, Hydrogel, Natural*