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Determination of Hydroperoxides with the Use of Immobilized Glutathione Peroxidase in a Flow System*

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Various hydroperoxides were determined in a flow system with the use of glutathione peroxidase immobilized on N-(2-aminoethyl)-3-aminopropyl glass. In this system, the glutathione diminished by the reaction with hydroperoxide was monitored through its reaction with 5,5'-dithio-bis-(2-nitrobenzoic acid). The optimum pH for this immobilized enzyme was found to be 7.8. The rates of three carrier solutions were examined to obtain a favorable peak. The calibration curves for hydrogen peroxide, tert-butyl hydroperoxide, cumene hydroperoxide, linoleate hydroperoxide and linolenate hydroperoxide showed high linearity over the sample concentration range from not more than 10 to 100 μ M. The detection limits for the above hydroperoxides were in the range from 0.2 to 0.5 nmol. The determination of hydroperoxides could be performed in 4 min.

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