

Regular papers

Thermodynamic studies of the interaction of glucose oxidase with anionic and cationic surfactants

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Abstract

The interaction between glucose oxidase and sodium n-dodecyl sulphate (SDS), sodium n-hexadecyl sulphate (SHS) and dodecyltrimethylammonium bromide (DTAB) in

aqueous solutions by equilibrium dialysis and spectrophotometry at various temperatures is investigated. The binding data are used to obtain thermodynamic parameters, which are interpreted in terms of a theoretical model based on the Wyman binding potential and the van't Hoff relation.

UV absorption spectra show that the cationic detergent DTAB unfolds glucose oxidase immediately, that SDS has no instantaneous effect, and that SHS has a small immediate effect on the structure of glucose oxidase.

The binding of SDS, SHS and DTAB to glucose oxidase differs with time. DTAB plays a distinct role in the immediate interaction with glucose oxidase, which is in marked contrast to other denaturants.

Article Outline

- References

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