

Russian Chemical Bulletin 2014 vol.63 N1, pages 273-279

Structure and catalytic activity of α -chymotrypsin in solutions of gemini surfactants

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Abstract

The regulatory effect of gemini alkylammonium surfactants (GSurf) with the hexamethylene spacer varying in the length of alkyl radicals on the structure and catalytic activity of α -chymotrypsin was studied. A correlation between the activity of α -chymotrypsin and the length of the alkyl radical of GSurf was found. Gemini surfactants enhance the enzyme activity below the critical micelle concentration (CMC) and inhibit that above the CMC. The results of IR spectroscopy and the data on tryptophan fluorescence show that the interaction of GSurf with α -chymotrypsin induces changes in the protein structure differed in intensity. The most probable enzyme complexes with GSurf were characterized by the molecular docking method. © 2014 Springer Science+Business Media, Inc.

<http://dx.doi.org/10.1007/s11172-014-0423-z>

Keywords

A-chymotrypsin, Catalytic activity, Complexes, Gemini surfactants, Structure