

Exposure of tryptophanyl residues in α -lactalbumin and lysozyme

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Abstract

The effect of iodide ion on the tryptophyl fluorescence of the homologous proteins lysozyme and α -lactalbumin in their native form, as well as in their modified structures and in fragments from these proteins was studied. By assessing the contribution to the total fluorescence of the exposed and buried Trp residues, and of the respective fluorescence quantum yields, the quantization of the number of Trp exposed to the solvent for all the species studied was possible. Both native proteins show an important increase in the number of Trp residues exposed to the solvent when treated with denaturing agents. The peptides L-II (aa 13-105) and α -I (aa 1-90) from lysozyme and α -lactalbumin, respectively, showed Trp residues with different degree of exposure, whereas the smaller fragments, L-III (aa 106-129) and α -II (aa 91-123), had all their Trp residues exposed to the solvent.

Keywords Peptide, Iodide, Quantum Yield, Lysozyme, Modify Structure