

Isolation and photo-oxidation of lysozyme fragments

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Abstract

Reduction of the four disulfide bonds and further carboxymethylation of lysozyme followed by its reaction with CNBr brings about L-I, (aa 1–12) and L-II-III (aa 13–129) peptides.

When breaking the polypeptidic chain by CNBr action and freeing the peptides formed through S-S bonds reduction and carboxymethylation three peptides are obtained corresponding to L-I (aa 1–12), L-II (aa 13–105) and L-III (aa 106–129). L-II-III, L-III and L-II peptides were separately subjected to photo-oxidation in presence of riboflavin, in 0.05 M phosphate buffer, pH 7.0. The kinetic analysis of Trp photo-oxidation in L-II-III peptides shows that these residues keep, to a great extent, the degree of exposition they had in native lysozyme. L-II peptide also presents Trp residues with a different degree of exposition. Presence of Tyr photo-oxidation in L-II and L-II-III peptides - what does not take place in native lysozyme - suggests a relationship between photo-oxidation selectivity and the degree of exposition of certain amino acid residues in spatial configuration.

Keywords Peptide, Phosphate, Phosphate Buffer, Disulfide, Amino Acid Residue