



Analysis of the molten globule state of bovine α -lactalbumin by using vibrational circular dichroism.

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Streszczenie

We investigated molten globule state of α -lactalbumin by using vibrational circular dichroism (VCD) and two-dimensional (2D) correlation spectroscopy. To investigate details on the denaturation mechanism of α -lactalbumin, 2D correlation spectroscopy was applied to the pH-dependent VCD spectra of α -lactalbumin aqueous solutions. The denaturation transition point of α -lactalbumin was determined by 2D gradient mapping method. Large spectral changes of VCD spectra were observed at pH 4.75 and 2.75 in 2D gradient map, which are transition points. Based on analysis of 2D VCD correlation spectra, we can suggest the sequence change from pre-molten globule state to molten globule state. Intermolecular β -sheet changed first, and then lower-frequency β -sheet structure changed before α -helices with continued lowering of the pH.

Słowa kluczowe

Vibrational circular dichroism (VCD), Two-dimensional (2D) correlation spectroscopy, α -Lactalbumin, Molten globule state, Protein denaturation

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