

CD-studies of the Recombinant Proteins Modeling Spider-Web Proteins Spidroin I and Spidroin II

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CD-study of the recombinant proteins of spidroin I and spidroin II type recovers poly-l-proline II left-helical conformation as basic structure of this protein. This type conformation was found for the first time in b-structural silks.

We observe isobestic point at the CD-curves of water solutes of the recombinant proteins at various concentrations. Interestingly, similar isobestic points are observed also in native proteins from silkworm glands upon regeneration of soluble forms, and in conformational transformations of prion proteins accompanying amilodoidose.

It is obvious that the main type of conformational transitions in the course of these processes is transition from left-helical poly-l-proline II structure to b-structure.

Transitions to conformations of b-structural type are initiated by any interactions that lead to dehydration of polypeptide back-bone. Lose of bounded water always destabilizes polyproline structure.

Existing of isobestic point (during concentration dependency) and poly-l-proline II left-helical conformation as a starting conformation of fibrillogenesis suggest that we attained full imitation of intermolecular process of cross-b-structure formation. Next stages of structure formation require fine mutual assigning of macro-structural elements of protein and apparently fine organization of germ-formation processes.

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