Structural Characteristics of Gamma Irradiated Silk Fibroin

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In this study, it was examined the changes in the molecular structure of silk fibroin by gamma irradiation. The results of gel permeation chromatography and sodium dodecyl sulfate-polyacrylamide gel electrophoresis showed that the molecular weight of fibroin was increased depending upon the irradiation dose. Secondary structure of fibroin determined by using circular dichroism revealed that the ration of alpha-helix was increased up to 10 kGy and then decreased depending upon the irradiation dose. Whereas, the ratio of beta-sheet, beta-turn, and random coil were decreased and then increased with an alteration in the alpha-helix secondary conformation.