Biochemical and spectroscopic characterization of almond and cashew nut seed 11S legumins, amandin and anacardein.

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Journal Of Agricultural And Food Chemistry
59:386-393.

Abstract:
Native, undenatured amandin and anacardein secondary structures were estimated to be, respectively, 56.4 and 49% β-sheet, 14 and 23.7% R-helix, and 29.6 and 27.4% random coil. Circular dichroic (CD) and fluorescence spectroscopy were used to assess structural changes in amandin and anacardein subjected to denaturing treatments that included heat (100 ^{0}C, 5 min), guanidium HCl (GuHCl), urea, sodium dodecyl sulfate (SDS), and reducing agent, 2% v/v β-mercaptoethanol (βME) þ heat. Mouse monoclonal antibodies (mAbs) 4C10 and 4F10 directed against amandin and 1F5 and 4C3 directed against anacardein were used to assess the influence of denaturing treatments on the immunoreactivity of amandin and anacardein. Among the denaturing treatments investigated, SDS and β-ME caused a significant reduction in the immunoreactivity of amandin and anacardein when probed with mAb 4C10 and 4C3, respectively.