

Amyloid Contaminated Food: Serious but Neglected Issue

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Abstract—Amyloid refers to a specific aggregation state of misfolded proteins appearing as deposits in a variety of tissues. Consumption of amyloidotic food may augment the possibility of 'cross seeding' leading to promotion of fibrilization process and spreading of amyloid formation in a tissue or in the body. This may increase the chances of occurrence of amyloid associated disorders such as AA amyloidosis, Type 2 diabetes, Prion related diseases and neurodegenerative or non-neuropathic systemic/localized amyloidosis which are characterized by the appearance of protein aggregates or plaques in tissues of affected individuals. Harmful proteins fragments known as amyloid fibrils present in the meat of poultry and mammals damage the brain cells in Alzheimer's disease and the pancreatic cells in Type II diabetes. The high cooking temperatures also fails to eliminate their amyloidogenic potential. A previous study indicates that amyloid fibrils other than prions may be a potent source of food-borne contagion and amyloid deposits in the tissues of food animals and plants products could have 'tremendous food safety implications.' The current epidemiological data is insufficient to address the issue of amyloid tissue food safety. It is, therefore, important to develop cleaning and disinfection methods and control systems in food-processing plants and environments. A great deal of work needs to be done to quantify the risk, and ensure that we are not eating foods that trigger and accelerate the development of AA amyloidosis.

Keywords: Amyloid, food safety, protein aggregates, neurodegenerative, cross seeding, amyloidosis