Effect of phenolics on amandin immunoreactivity.

Zhang, Y 2018
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Abstract:
Amandin immunoreactivity was assessed using monoclonal antibody (mAb) 4C10-based immunoassays: enzyme- linked immunosorbent assay (ELISA), Western blot, and dot blot. Nonpareil almond soluble proteins mixed with equal amounts of select phenolic compounds were incubated at room temperature (RT, 22 °C) or heated at 100 °C for 1 h. As revealed by ELISA, only incubation with tea tannins had a measurable effect on amandin immunoreactivity at RT. Incubation with tannic acid, tannin, ellagic acid, tea tannin, and walnut tannin at 100 °C for 1 h stabilized amandin immunoreactivity. Nonpareil whole almond flour mixed with ellagic acid or grape seed tannins (each at 1 and 2%; w/w) was subjected to autoclaving (121 °C, 15 psi; 5, 30 min); blanching (100 °C, 3, 10 min); microwaving (500 W, 1, 3 min); and roasting (140 °C, 170 °C, 177 °C for 30, 20, and 12 min; respectively). In addition, Nonpareil whole almond flour mixed with ellagic acid or grape seed tannins (each at 1 and 2%; w/w), in presence of sugar (5% and 20%, w/w) or corn syrup (5% and 20%, w/w), was also subjected to roasting at 170 °C for 20 min. ELISA results suggested that moist heat (autoclaving and blanching) was the most effective in reducing the mAb 4C10 detectable amandin immunoreactivity.