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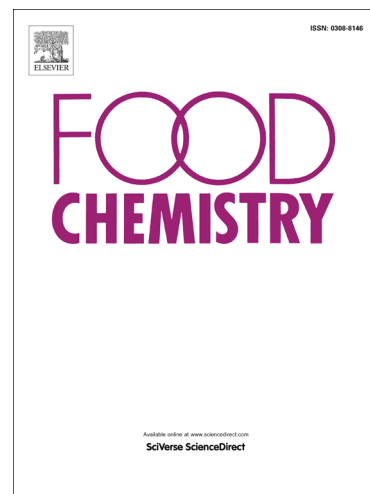
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The complexity of condensed tannin binding to bovine serum albumin – An isothermal titration calorimetry study

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Abstract

Isothermal titration calorimetry was applied to study the binding of purified proanthocyanidin oligomers to bovine serum albumin (BSA). The molecular weight of the proanthocyanidin oligomer had a major impact on its binding to BSA. The calculated change in enthalpy (ΔH) and association constant (K_a) became greater as the oligomer size increased then plateaued at the heptameric oligomer. These results support a model for precipitation of proteins by proanthocyanidin where increased oligomer size enhanced the opportunity for cross linkages between proteins ultimately forming sediment-able complexes. The authors suggest tannin binding to proteins is opportunistic and involves multiple sites, each with a different K_a and ΔH of binding. The ΔH of binding comprises both an endothermic hydrophobic interaction and exothermic hydrogen bond component. This

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