〔Food Hydrocolloids, 4, 323 (1990)〕

The Decrease of Thaumatin's Sweetness Intensity Upon Interaction with Carrageenan.

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Carrageenan was added at various ratios to thaumatin, a sweet protein, and the interactions between thaumatin and λ-, κ- and ι-carrageenan were investigated from the following standpoints: pH, turbidity at 550nm, CD spectral change (△ε) and the decrease in sweetness intensity. Decrease in thaumatin wseetness intensity was observed with lower pH (<4) and higher carrageenan concentrations in the following order: λ-≒ι->κ-carrageenan. There was no correlation between sweetness intensity decrease and turbidity. With the increase in carrageenan concentration, CD spectral change (△ε) was distinctly observed at pH 3-4. Thaumatin's sweetness intensity decreased simultaneously.

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Interaction of Thaumatin with Carrageenans. II. Effects of pH, Temperature and Competing Cations studied by Circular Dichroism.

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Interaction of thaumatin with carrageenans was studied spectroscopically on the basis of circular dichroism (CD) at pH 3-7 and 20-60°C and examined from estimating the sweetness of the complex. The most noticeable reduction in sweetness intensity of thaumatin was pH 3-4 and less sweetness reduction occurred at pH 5-7. Thaumatin was completely dissociated from a thaumatin-carrageenan complex at pH 5-7 when a salt was added to the complex, but no complete dissociation occurred at pH 3-4. The results suggest that the complex formation at pH 5-7 is due to electrostatic bonding (ionic bonds), but that at pH 3-4 another bonding mechanism is also involved.

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A One-step Enzyme Immunoassay for Human Manganese Superoxide Dismutase with Monoclonal Antibodies.

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A one-step enzyme immunoassay for the determination of manganese superoxide dismutase in serum has been developed with two kinds of monoclonal antibodies. Proposed method had high sensitivity (assay range, 0.4～200 ng/ml), good recovery (recovery percentage, 102.9～106.2%) and reproducibilities (intraassay, C.V.=1.87～3.66%; interassay, C.V.=3.03～10.4%). From these results, it is possible to apply this method to routine clinical analysis and biochemical research with various purposes.