**Effects of Acyl Groups of Gellan Gum on Gelatinization and Stabilization of Purple Sweet Potato Beverage**

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The content of acyl groups influences the rheological properties and gelation process of gellan gum. However, the effect and mechanism of acyl groups of gellan gum in beverage system still remain unknown. Here, we prepared a series of gellan gum with different contents of acyl group, and further applied it to the purple sweet potato beverages with the concentration of 0.02 % (w/w). The rheological parameters, particle size distributions, turbidities, sedimentation, color parameters, and morphological structures of each sample after 0, 7, and 90 days of storage at 37 °C were studied. It was found that along with the increment of acyl content, the viscosity, turbidity, and flow indexes (*n*<1) increased while consistency coefficient, delta BST values, sediment decreased. Importantly, the physical and sensory characteristics would be enhanced, which further indicated the applicability and advantages of using higher acyl group gellan gum in purple sweet potato beverage. It is concluded that higher content of acyl group in gellen gum gave better stabilizing capability in the beverage system by forming a strong crosslinking network and elongated, fractal particle structures. Notably, purple sweet potato beverage with HA gellan showed a great effect on the stabilization of natural colors mainly due to the inhibition of anthocyanin degradation as copigmentation complexes, which may further broaden the potential application of gellan gum. Taken together, the study provided a comprehensive analysis of the function of acyl group of gellan gum on the stabilization of beverage system, observed the superiority of high acyl gellen in inhibiting color fading of anthocyanins, and further promoted the application of gellen in beverage system.

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