**Pasting, rheological properties and retrogradation of rice starch gel as affect by low and high acyl gellan gums**

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Rice is one of the major cereal crops consumed in China and other Asian countries. There are many rice starch-based foods on market, such as rice noodles, infant rice flour, steamed rice bread and sponge cake *et al*. The addition of various hydrocolloids (gums) to rice starch-based foods offers a good way to improve texture, and guarantee constant quality. Gellan gum is a typical linear and anionic polysaccharide produced by a non-pathogenic bacterium. It has the advantage of forming gel at very low concentration which make it a good candidate to improve the moisture retention and viscoelasticity of rice starch products like other polysaccharides. The aim of this study was to investigate the effects of low acyl (LA) and high acyl (HA) gellan gum on pasting, rheological and retrogradation of rice starch (RS) gel. RVA analysis indicated that viscosity and pasting temperature of the RS increased with the addition of gellan gums especially for HA gellan gum. Dynamic viscoelasticity measurements indicated that the RS/HA mixed pastes exhibited superior viscoelastic properties to the RS/LA pastes as evidenced by their higher *G*’ and lower tan *δ* values. Flow curves of all the samples showed shear thinning behavior and pseudoplastic properties. The RS/HA pastes exhibited less thixotropic hysteresis loops during a full shear cycle and more pronounced recovery rate in in-shear structural recovery compared with the RS/LA pastes. The creep recovery data were well fitted by a 4-element Burger’s model. Differential scanning calorimetry and textural measurements showed that the addition of both LA and HA retarded the retrogradation of the rice starch gel during storage at 4 °C for several days. It was concluded that the addition of gellan gums with different acyl contents modified the rheology of rice starch gel in different ways and interacted under different models based on their molecular structures.