

Study of gelling effect of low methoxyl pectins in presence of different types and concentrations of calcium ions.

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Pectins are a class of complex polysaccharides (homopolymer) found in the cell walls of higher plants, as in apple pulp and citrus peel. They can be of two types: high methoxylation and low methoxylation, the latter gel in the presence of calcium ions. The objective of this work was to study the formation of gels with low methoxyl pectins using different calcium ions (citrate, carbonate and calcium chloride) at different concentrations (0, 50, 100 and 150 mg/L). Gels were made with the different calcium ions in the presence and absence of gum arabic and were subsequently stored at room temperature. All treatments were compared in terms of hardness (gel strength) with the control (no addition of calcium ions). The concentration of the other components remained constant during the development of this project, all samples were adjusted to 65° Brix. Texture analysis was performed using a Brookfield CT3 Texture Analyzer. The analysis used was the TPA. The results demonstrate that the low methoxyl pectins have good synergy with gum arabic in the presence of calcium chloride, since with the help of this ion a hardness value of 490 g was obtained and in the absence of gum arabic this value fell to a hardness value of 269 g. An effect not mentioned in the literature was observed in the gels formed with calcium citrate. Since its activity was inhibited in the presence of gum arabic. In the formation of gels with low methoxyl pectins, calcium chloride ensures the required hardness of the gel. Its effect at low concentrations with and without addition of gum arabic, is positive as far as gel formation is concerned. Due to the complexity of its chemical structure calcium carbonate had no gelling activity in the presence of low methoxyl pectins.

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