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Abstract

Hydrogels Based on Polysaccharides Grafted Ferulic Acid: A Biomimetic Approach †

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Some cereal seeds present mucilage composed of polysaccharides bearing ferulic acid (FA) groups, which are capable of reacting in the presence of an enzyme such as laccase to generate chemical hydrogels [1]. The main idea of this work, following a biomimetic approach, is to elaborate artificial polysaccharides grafted with ferulic acid groups [2]. Various polysaccharides have been studied: anionic ones (carboxymethylpullulane (CMP) as a model, hyaluronan (HA) for application) and neutral ones (pullulan (P)). We report here the availability of the grafting, the evidence of crosslinking (Figure 1) leading to hydrogels in the presence of laccase (as a function of FA, polymer and laccase amount) and evidence of antioxidant properties of such derivatives [3].

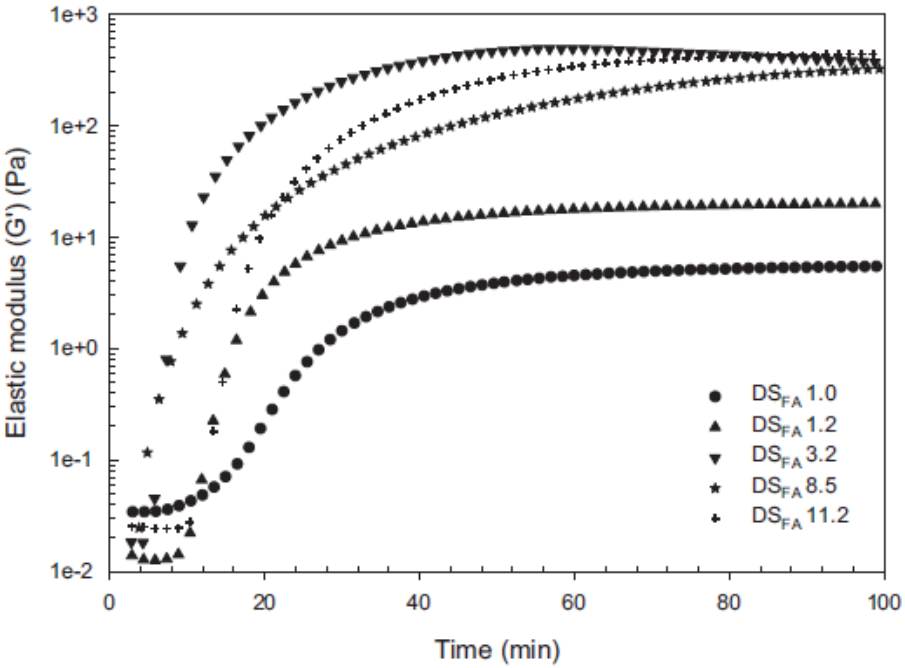

Figure 1. G' vs. time for CMP-FA for various DSFA. Laccase at 2 nkat, 20 g L^{-1} in polymer, 25 °C in citrate/phosphate buffer (0.1 mol L^{-1} pH 5.5).

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