

Valorization of Algerian leguminous: extraction and characterization of galactomannans

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ABSTRACT/RESUME

Abstract : This study has an environmental objective based on the valorization of the seeds of legumes in order to obtain a clean nature, its seeds are considered as a good source of galactomannans which can replace other synthetic polysaccharides. They consist on the evaluation of physicochemical properties of galactomannans isolated from different seeds parts of two leguminous species widely known in Algeria: Gleditsia triacanthos and Ceratonia siliqua (carob), which represent an important source of polysaccharides. The extraction gave an appreciable yield assessed at 12.97% of Gleditsia triacanthos and 11.45% of Ceratonia siliqua; values which encourage their valorization. The physicochemical composition of the extracted galactomannans showed comparable characteristics in terms of humidity; pH; °Brix and ashes. While; rheologic properties revealed that galactomannans solutions have a pseudo plastic nature.

In the other hand; the functional properties analysis showed that the galactomannans obtained are soluble in water; the water absorption capacity was higher for Gleditsia triacanthos than Ceratonia siliqua with 20.62 and 5.98 respectively. Infrared analysis demonstrates that the same chemical structures of galactomannans were extracted from the two species. NMR analysis allowed us to estimate the galactose / mannose ratio of the two extracts. This ratio is 1.25/1 and 3.63/1 of Gleditsia triacanthos and Ceratonia siliqua respectively.
