

## Suitability of Novel Galactomannans as Edible Coatings for Tropical Fruits

Lima, A.M.P.<sup>2</sup>; Cerqueira, M.A.<sup>1</sup>; Souza, B. W..<sup>1</sup>; Teixeira, J.A.<sup>1</sup>; Monteiro-Moreira, A.C.O.<sup>3</sup>; Vicente, A.A.<sup>1</sup> & Moreira, R.A.<sup>2,3</sup>.

<sup>1</sup>IBB-CEB, UMINHO, Braga(PT), <sup>2</sup>DBBM-UFC, Ceará(BR), <sup>3</sup>CCS-UNIFOR, Ceará(BR)

Great losses in the quality of fresh fruits occur between their harvest and consumption, and one of the most important drawbacks in fruit distribution chains is their short shelf life. The semipermeable barrier provided by edible coatings is aimed to extend shelf life by reducing moisture migration, gas exchange, respiration and oxidative reaction rates, as well as suppress physiological disorders on fresh-cut fruits. The objectives of this work were to determine the optimal composition of galactomannan-based edible coatings in view of their application to extend the shelf life of several tropical fruits. Galactomannans extracted from seeds of *Caesalpinea pulcherrima* and *Adenantha pavonina* were solubilized and characterized as coatings for five tropical fruits: acerola (*Malpighia emarginata*), cajá (*Spondias lutea*), mango (*Mangifera indica*), pitanga (*Eugenia uniflora*) and seriguela (*Spondias purpurea*). The surface properties of the five fruits were determined, and different formulations of aqueous galactomannan solutions (0.5 %, 1.0 % and 1.5 %) with glycerol (1.0 %; 1.5 % and 2.0 %) were tested in terms of wettability on the five fruits. For the solutions with the best values of wettability, films were casted and used to measure: water vapor permeability, oxygen permeability, carbon dioxide permeability, tensile strength and elongation at break. The best formulation (in terms of the combination of surface, permeability and mechanical properties) to coat these five fruits was the solution with 1.5 % of galactomannan from *A. pavonina* and 1.0 % of glycerol.

Keywords: edible coatings, galactomannans, wettability, tropical fruits.

Supported by: ALFA-VALNATURA, FCT, CNPq, CAPES, FUNCAP, RENORBIO.