

## ***Caesalpinea pulcherrima* Galactomannan Nanoparticle – Utilization for Controlled Release of Stradiol**

Thé, A. P.<sup>1</sup>; Moreira, H.H.T.<sup>1</sup>; Alves, G.R.M.<sup>1</sup>; Paula, R. M.<sup>2</sup>; Moreira, R.A.<sup>1</sup>;  
Monteiro-Moreira, A.C.O.<sup>1</sup>

<sup>1</sup>Centro de Ciências da Saúde, Universidade de Fortaleza – UNIFOR, Ceará, Brasil;

<sup>2</sup>Departamento Química Orgânica e Inorgânica, Centro de Ciências, Universidade Federal do Ceará, Fortaleza, Ceará, Brasil.

In recent years, biodegradable polymeric nanoparticles have attracted considerable attention as potential drug delivery systems, in view of the applications in controlled release of drugs. Galactomannan, a polysaccharide obtained from the seeds of *Caesalpinea pulcherrima*, was used for the synthesis of polymeric nanoparticles. This study aimed to evaluate the incorporation of stradiol in galactomannan nanoparticles, using the method of dialysis and its controlled release after administration *in vivo*. The *Caesalpinia pulcherrima* seed galactomannan was submitted to acetylation with acetic anhydride, in the presence of formamide and pyridine, resulting in the galactomannan acetate (GA). The GA was used for the production of the nanoparticles to which stradiol was incorporated by dialysis. The nanoparticles of stradiol were tested in animals to evaluate their potential for controlled release *in vivo*. Male Wistar rats were divided into 7 groups, which received orally, the nanoparticles of stradiol (3), free stradiol (3), all containing 4mg of stradiol / animal and a control with only 0.15 M NaCl. After 0.5, 1, 2, 6, 12 and 24 hours after the administration, the retro-orbital plexus blood of the animals was collected and the stradiol concentration measured by the AxSYM<sup>®</sup> test. While the stradiol release time, from the control, was at 6 hours, the nanoparticles released stradiol after 6h until 24 hours.

**Keywords:** *Caesalpinea pulcherrima*, Galactomannan, Nanoparticles, Drug Delivery, Stradiol

Supported by: Rede Nanoglicobiotechnologia-CNPq