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1 **The conformational transitions in organic solution on the cress seed gum**
2 **nanoparticles production**

3
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7
8 **Abstract**

9 The seeds of *Lepidium sativum* (garden cress) were selected as a new hydrocolloid source to
10 fabricate cress seed gum nanoparticles (CSGN) by the desolvation method. The intrinsic
11 viscosity of the CSGN solutions was measured to evaluate the conformational differences of
12 the CSG resulted by the various production conditions. The intrinsic viscosity of CSGN
13 solutions was estimated by using various models, i.e. Huggins, Kraemer, Tanglertpaibulm-
14 Rao and Higiuro, and then the intrinsic viscosity was an objective function aimed at
15 optimizing the conditions for the solubilization of CSG nanoparticles by the response surface
16 method. The results indicated that among the conditions for the preparation of nanoparticles,
17 acetone and gum concentrations had significant effects on the intrinsic viscosity of
18 nanoparticles. Hereby, CSG served as a source of anionic polyelectrolyte molecules in dilute
19 solutions with acetone-water mixtures. This compound goes on to display a coil-globule
20 transition above a certain threshold of acetone.

21
22 **Keywords:** Desolvation; Hydrocolloid; Intrinsic viscosity; Nanotechnology.

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