

## Preparation and characterization of hydrophobic polysaccharide derived nanoparticles obtained in O/W nano-emulsions by low-energy methods

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The development of nanostructured systems, is emerging as a novel approach to confer improved or new physical, chemical or biological properties to materials, ranging over optical, magnetic, electrical, interfacial, self-aggregating, catalytic, synthetic or pharmacologic features among others. Polymeric nanoparticles can be prepared by a broad variety of procedures, among which the nano-emulsion template approach offers interesting advantages for toxicological, economical and environmental reasons [1-3]. The aims of this work were the preparation of hydrophobic polysaccharide nano-emulsions by low-energy methods employing biocompatible components, and the use of these nano-emulsions as templates for the obtention of nanoparticles. Nano-emulsions were prepared in water / nonionic surfactant / hydrophobic polysaccharide organic solution systems by a low-energy method, consisting of changing composition at constant temperature. Nano-emulsions obtained were characterized by dynamic light scattering (DLS) and their stability was studied by means of backscattering. Nano-emulsions obtained showed mean droplet sizes around 200nm, low polydispersity (below 0.2) and good kinetic stability. In a second step, the organic solvent of these nano-emulsions was removed by evaporation, to obtain globular nanoparticles with mean sizes below 100nm. The nanoparticles shape, average sizes and polydispersity were assessed by DLS as well as scanning and transmission electron microscopy (SEM and TEM respectively) and related to the template nano-emulsion system.

### References:

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