*Poster*


# Synthesis and characterization of nanoparticles of polyphenolic extracts for the treatment of inflammatory bowel disease

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## ABSTRACT

Inflammatory bowel disease (IBD) is a digestive tract disorder, of which two types are distinguished: ulcerative colitis (UC) and Crohn's disease (CD). In both cases, the disease progresses through periods of relapse and remission. Although the etiology of IBD is unknown, it is known to be a multifactorial disease that involves in its development environmental, genetic and immunological factors as well as alterations in the intestinal microbiota in its development. The prevalence and incidence of UC and CD have increased worldwide in recent decades, specially in Europe and North America. Polyphenols, and among them those from the maqui extract [1,2], are showing great potential in the treatment of IBD, but it remains a challenge to find a formulation that allows them to reach their site of action, the intestine, without lose their therapeutic properties. In this context, the objective of our work has been to develop formulations based on polymeric organic nanoparticles containing maqui polyphenolic extracts, for subsequent testing both in vitro, in cultures of colonic epithelial cells, and in vivo, in a murine model of Crohn's disease.

**Methods:** We have encapsulated maqui polyphenolic extract in polymeric organic nanoparticles based on a co-precipitation method developed in our group [3]. We have tested the following encapsulation polymers: polyvinyl alcohol, polyethylene glycol, polyetherimide and polyvinylpyrrolidone, and obtained the best results with the last one. The obtained nanoparticles have been characterized, among others, by DLS, UV-Vis and FTIR.

**Results:** We have managed to synthesize polymeric organic nanoparticles encapsulating maqui polyphenolic extract with and without tannic acid as an adjuvant. The nanoparticles have a suitable size for biomedical applications and high stability, as reflected by their zeta potential. The presence of the active principles has been validated by FTIR and its liberation's profile has been established in the presence of an aqueous medium.

## REFERENCES

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