

Improving the stability of probiotics by innovative encapsulation technology. By Librán C.M.¹, Wilkanowicz S.¹ and Lagarón J.M.^{2 1} *BioInicia S.L., Apartado de correos 13061, Valencia 46021, España.*² *Instituto de Agroquímica y Tecnología de Alimentos (IATA), Consejo Superior de Investigaciones Científicas (CSIC), Avda. Agustín Escardino, 7. 46980 Paterna, Valencia, España.*

E-mail: celialibrán@bioinicia.es

One of the most important problems on probiotic therapy is the low viability or even death of the supplied microorganisms when goes through the human's gastrointestinal tract (GIT). These beneficial bacteria have to face low pH and the presence of enzymes through this route until they reach target points to act. Great efforts are made in this field but commonly used technologies could damage microorganisms due to high temperature, use of solvents or long time of exposition.

This work is focused on the protection of probiotics at different storage condition and in the human gastrointestinal tract (GIT). We use food grade biopolymer solutions to encapsulate probiotics, mainly. We encapsulate microorganisms by using our proprietary electrohydrodynamic technology (www.bioinicia.com). Our encapsulation technology is a non-thermal process (that permits to work even at refrigeration temperature, 5°C) and virtually in any solvent conditions.

We have encapsulated properly probiotics with no changes on bacteria morphology and without viability drops during processing. We have made viability studies over time, under different environmental conditions (temperature and relative humidity). The encapsulated probiotics substantially prolong bacterial viability as compared to the non-encapsulated strains, for all of the studied conditions. Moreover some of these encapsulating materials present a beneficial effect against acidic conditions compared to freeze dried microorganisms. These results show the potential of our proprietary electrohydrodynamic processing and equipment for encapsulation of bacteria.