

Effect of polysaccharides obtained from *Plantago major* L. leaves on *Lactobacillus bulgaricus* L14 in an *iv vitro* model of the gastrointestinal tract

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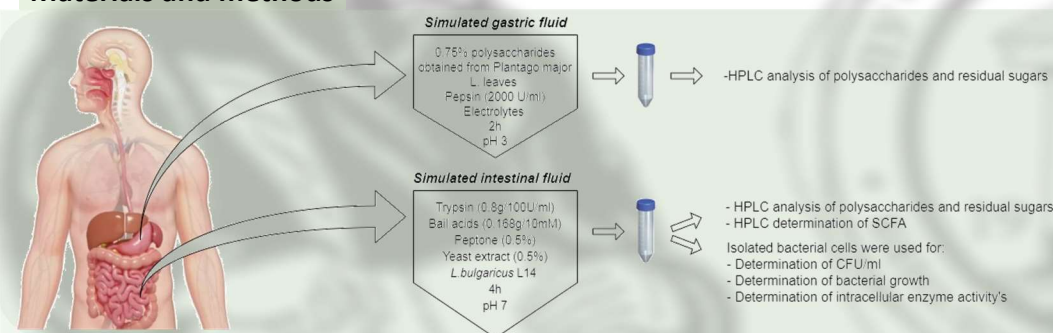
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Introduction

There is an evidence that prebiotics can impart a range of health benefits if consumed on a regular basis. The goal of this study was to develop a physiological model of the upper gastrointestinal tract to investigate the metabolic profile of probiotic strain *L. bulgaricus* L14 in present of 0.75% polysaccharides obtained from *P. major* L. leaves. The polysaccharide degradation and utilization from probiotic strain L14 using in vitro model including gastric phase and intestinal phase simulated digestion in humans was developed.

Materials and methods



Results and discussion

As a results of hydrolytic processes in gastric phase after 2h, polysaccharides obtained from *P. major* L. leaves were partially hydrolyzed to monosaccharides-mainly galactose and oligosaccharides with DP higher than 6. On the Fig. 1 was presented the growth kinetics of *L. bulgaricus* during 4h digestion.

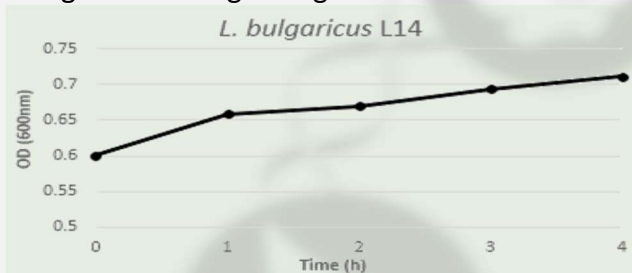


Fig. 1 Optical density value (OD) of *L. bulgaricus* L14 strain in the intestinal phase

Conclusions

The ability of pectin type water-extractable polysaccharides from *P. major* L. leaves, as well as their lower molecular weight hydrolysates, to stimulate the growth of probiotic strain *L. bulgaricus* L14 strains in vitro GIT system was proven.

Acknowledgments

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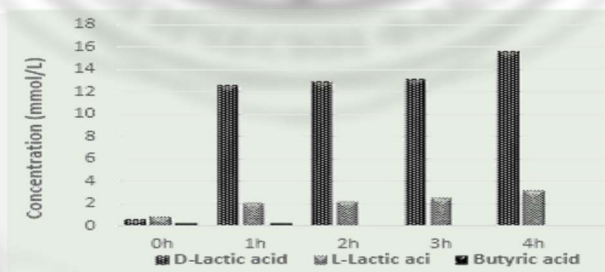


Fig 2. Concentration of SCFAs at different time points of fermentation in intestinal phase.

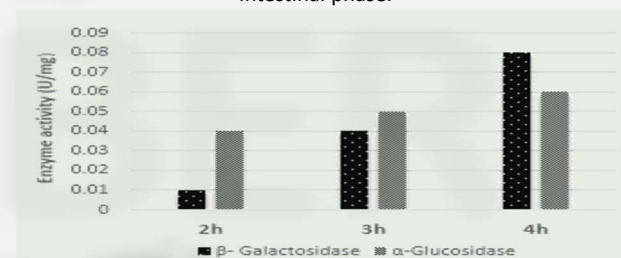


Fig 3. β -galactosidase and α -glucosidase activity of *L. bulgaricus* L14 strain involved in utilization of polysaccharide