

SACHARIDE PROFILE OF GREEN POWDERS AND ITS INFLUENCE ON PROBIOTIC GROWTH

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Gut microbiota play key role in the maintenance of host's metabolic and structural functionality. Non-digestible carbohydrates are considered to be prebiotics which significantly enhance growth and functionality of gut microbiota. Fructooligosaccharides (FOS) belong to important carbohydrate group with prebiotic effect. Selected green powders, such as barley, wheat, and matcha, were characterised for their saccharide content. Spectrophotometric methods were performed to determine total water soluble saccharides (Dubois method), reducing saccharides (Somogyi-Nelson method), non-digestible fructooligosaccharides (enzymatic method) and β -glucans (mixed linkage enzymatic method). Henneberg and Stohmann method was performed to determine dietary fibre. Furthermore, viability of probiotic bacteria (*L. acidophilus* CCM 4833, *L. casei* CCM 4798, *B. breve* CCM 7828T) cultivated in MRS medium and/or altogether with powders under optimal and digestive conditions (addition of model digestive juices) was analysed by using spectral flow cytometry and propidium iodide to stain bacteria cells. Finally, probiotics and green powders were encapsulated into alginate particles prepared by using Encapsulator Büchi. Green barley and wheat exhibited significant content of FOS and have positive influence on probiotic's growth. After exposition of probiotic bacteria combined with green powder to model digestion, more than 70 % viable probiotic bacteria were determined in MRS medium. Moreover, encapsulation of probiotic cells and green powders into alginate particles can increase protection of probiotic's viability. To sum up, green wheat and barley are functional foods which enhance probiotic growth and protect probiotic viability even under digestive conditions.

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