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Probiotic cereal-based beverages; benefits and health related aspects

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Vereal grains are considered to be one of the most important sources of dietary proteins, carbohydrates, vitamins, minerals and fiber for people all over the world. However the nutritional quality of cereals and the sensorial properties of their products are sometimes inferior or poor in comparison with milk and milk products, but cereal-based beverages are appropriate for vegans and could be consumed by people who have protein allergies and lactose intolerants. Cereal-based beverages have a very small portion in worldwide probiotic foods, and most of the probiotic foods are milk based while cereals have a large distribution and important nutritive values. As a result, they are eligible to be used as raw materials for the development of new fermented functional foods, particularly probiotic products. The soluble and insoluble fibers in cereals fulfill the prebiotic concept and increase the growth of beneficial microorganism in human digestive system as well as probiotic bacteria. Besides, cereal grains are rich sources of phytochemicals, phenolic compounds and substances with antioxidant activity. Therefore, they are suitable vehicles for probiotic delivery. Probiotics are live microorganisms that, when administered in adequate amounts, confer a health benefit on the host. They can exert various health benefits such as anti-carcinogenic and anti-infection effects, improving immune system, reduction of cholesterol, alleviation of lactose intolerance and reducing side effects of antibiotics on consumer. Various strains have been used in formulation of cereal-based beverages such as Lactobacillus acidophilus, Lactobacillus plantarum, Lactobacillus casei and Lactobacillus reuteri. In conclusion, cereal-based probiotic beverages are appropriate for groups of people who have limitation in consumption of dairy products besides providing exotic and different taste. Therewith obtaining a combination of high nutritive value of seeds and the health benefits of the probiotic culture is provided by utilization of such products.

Recent Publications

- 1. Angelov A, Gotcheva V, Kuncheva R and Hristozova T (2006) Development of a new oat-based probiotic drink. International Journal of Food Microbiology, 112:75–80.
- 2. Arora S, Jood S and Khetarpaul N (2010) Effect of germination and probiotic fermentation on nutrient composition of barley based food mixtures, Food Chem. 119:779–784.
- 3. Blandino A, Al Aseeria M E, Pandiellaa S S, Canterob D and Webba C (2003) Cereal-based fermented foods and beverages. Food Research International, 36:527–543.
- 4. Brennan C S and Cleary L J (2005) The potential use of cereal $(1\rightarrow 3, 1\rightarrow 4)$ - β -D-glucans as functional food ingredients. Journal of Cereal Science 42:1-13.
- 5. Charalampopoulos D, Pandiella S S, and Webb C (2003) Evaluation of the effect of malt, wheat and barley extracts on the viability of potentially probiotic lactic acid bacteria under acidic conditions. International Journal of Food Microbiology 82:133-141.

Biography

Mahsa Shakooie is a Bachelor Student of Food Science and Technology at Shahid Beheshti University of Medical Sciences. She has graduated from National Organization for Development of Exceptional Talents. She has attended International Environmental project Olympiad in 2013 and got third place.

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