

ABSTRACT

Nutritional value and pro-health properties of low-processed food in the form of sprouted buckwheat seeds *Fagopyrum esculentum* Moench in the presence of probiotic yeast *Saccharomyces cerevisiae* var. *boulardii*

Buckwheat belongs to the family *Polygonaceae* and is referred to as a pseudocereal because it resembles cereals in terms of chemical composition and the possibility of using seeds similar to cereal grains. The most popular varieties are common buckwheat (*Fagopyrum esculentum* Moench) and Tartary buckwheat (*Fagopyrum tataricum* (L.) Gaertn.). The main forms of buckwheat available on the market are seeds, breakfast cereals, flours for bakery products (including bread) and other enriched products, as well as tea, honey and sprouts. Buckwheat grains contain a variety of nutrients, the most important of which are: proteins, polysaccharides, dietary fibre, fats, polyphenols and minerals. They have an impact on human health and show hypotensive, hypoglycemic, hypocholesterolemic, neuroprotective, antioxidant and anticancer effects.

The germination process changes buckwheat's nutritional value and has a positive effect e.g. on the content of fatty acids, amino acids, reducing sugars or flavonoids. One of the ways to change the nutritional value of the raw material, and thus change the health-promoting properties, is to modify the raw material. Therefore, the main objective of the study was to assess the effect of modification of the growth environment of *Fagopyrum esculentum* Moench buckwheat on the nutritional and health-promoting value of the obtained raw material by introducing, during germination, the addition of probiotic yeast *Saccharomyces cerevisiae* var. *boulardii*. Modification of the growth environment of buckwheat seeds influenced the changes in the nutritional value of the sprouts. Changes were noticed in the profile or amount of macronutrients and in bioactive compounds. In addition, modified sprouts were characterized by higher antioxidant and anti-inflammatory activity compared to control sprouts. The results obtained as part of the doctoral dissertation indicate the multidirectional and diverse functional potential of modified buckwheat sprouts, thanks to which this raw material can be used in the food industry as a potential food additive, especially for people suffering from chronic non-communicable diseases.

Keywords: buckwheat, probiotic yeast, *in vitro* studies, *in vivo* studies, antioxidant activity, anti-inflammatory activity, bioavailability, digestibility

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