

STUDIES ON THE GROWTH CONDITIONS AND COMPOSITION OF KEFIR GRAIN - AS A FOOD AND FORAGE BIOMASS

Algirdas Liutkevičius, Antanas Šarkinas

KTU Maisto institutas, Taikos pr. 92, LT – 51180, Kaunas; el. paštas: aliutkev@takas.lt

Summary. The possibilities of kefir grain biomass to increase its weight in milk whey were investigated. The effectiveness of growing medium was estimated according to the rate of the weight increasement of kefir grain biomass. It's chemical and microbiological data were established by standard methods.

The highest increase in kefir grain biomass (21,47-23,13 %) was established in natural curd whey after 3-4 days cultivation. The whey was found to contain a sufficiently high quantity of milk souring bacteria ($10^7/1$ ml).

The biomass of kefir grain contains 86,3 % natural moisture and 13,7 % dry matter, which comprises appr. 4,5 % protein, 1,2 % ash, 0,2 % cellular tissue, and 0,03 % fat. Protein accounts for the major nutritional value of the biomass, which makes 33 % of dry matter, including ash (appr.9 %), cellular tissue (appr.1,8 %), and fat (appr.0,2 %).

At a moisture content of 86,3 %, the composition of acid protein hidrolizate, characterized according to the content of indispensable amino acids (IAA), by mg/100 g of kefir grain biomass of the product, is the following: valine, 220; isoleucine, 262; methionine,137; lysine, 376; threonine, 183; phénylalanine, 231, and tryptophan, 70; in total, 1923 IAA.

In the dry matter of kefir grain the following macro- and microelements were found: macroelements (%): K (1,65); Ca (0,86); P (1,45); and Mg (0,30); microelements (mg/kg): Cu (7,32), Zn (92,7); Fe (20,3); Mn (13,0); Co (0,16); and Mo (0,33). Besides, vitamins of B group, such as B5, B2 and B1 were determined in the biomass of kefir grain in the following amounts: 3 mg/kg, <5 mg/kg, <10 mg/kg, resp.

Keywords: kefir grain, whey, cultivation, composition.