

البحث السابع

Laila R. Abd Al Halim' and Nesreen M. Nasr. (2024). Quality of New <i>Lactobacillus rhamnosus</i> Like-Yoghurt and the Effect of Using Gum Arabic as Prebiotic. Journal of agricultural research and development. 38 (3). Accepted for publication	البحث السابع
فردى مشترك مع آخرين من خارج التخصص – مقبول للنشر	7

Title	Quality of New <i>Lactobacillus rhamnosus</i> Like-Yoghurt and the Effect of Using Gum Arabic as Prebiotic.
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ABSTRACT

Lactobacillus rhamnosus is commonly found in several fermented dairy products. The safety of probiotic *L. rhamnosus* OP268117 strain 6481 was evaluated in this study using hemolytic and gelatinase activity tests. The hemolysins or gelatinases were not detected for this probiotic candidate and so it is considered a safe for human use. Three different concentrations of gum Arabic (GA) were added to the like-yogurt, which was previously inoculated with the probiotic starter stated earlier. The utilization of concentrations of 0.25%, 0.5%, and 1% GA, namely B, C, and D, respectively, resulted in a significant improvement ($p < 0.001$) in the viable count of *L. rhamnosus* compared to the control samples, namely A, with the highest number (18.93×10^9 CFU/ml) observed in treatment D containing 1% GA on the 14th day. Adding GA had a substantial impact on the moisture, protein, and fiber content of the samples, but it did not influence the percentage of fat. The treatment with 1% GA (D) exhibited the highest fiber content. The pH decreased gradually as GA concentration increased during storage. Furthermore, the yogurt with 1% and 0.75% GA (D and C) showed the highest viscosity measurements on the 14th day of storage. The addition of GA had a significant impact on all sensory attributes, except for flavor, which was only minimally affected. The grades for appearance and texture were improved as the GA content increased. Thus, it is recommended to incorporate *L. rhamnosus* in the production of yogurt, together with 1% GA as a prebiotic to enhance the nutritional composition, overall appeal, and survival rate of the probiotics employed in the fermentation process.