

Physicochemical and microbiological evaluation of a probiotic carrot bio-yogurt stored under refrigeration conditions

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Introduction: Carrot (*Daucus carota*) and mango (*Mangifera indica*) are considered a substrate for the growth of lactic acid bacteria, due to the content of carotenoids, antioxidants and fibre. Phytochemicals and bioactive molecules are attractive in designing alternative fermented dairy beverages such as bio-yogurt. The objective of this work was to evaluate microbiological (cell viability) and physicochemical variables (pH, titratable acidity and soluble solids) of a bio-yogurt during 21 days of storage (4°C).

Methods: Bio-yogurt formulations based on oak honeydew, FOS, carrot and mango pulp. The probiotics was activated for 48 hours and inoculated with 1%v/v, the probiotic was VEGE092 from HOWARU Danisco®. As a control, the starter culture YOFLEX CHR Hansen®. Growth and acidification kinetics were evaluated by measurements during 0,1,7,14 and 21days. Viability was determined by depth plate counting on MRS agar. The measurement of pH and titratable acidity was carried out by the potentiometric method (AOAC 937.05)

Results: The addition of carrot, mango, oak honeydew and FOS, influenced growth and acidification kinetics due to nutritional compounds available for probiotics. Regarding pH, during 21 days storage days stabilized at values of 4 and 4.1 for VEGE092 and the control respectively. In cellular viability there was a significant difference during storage, VEGE092 culture showed a greater adaptation reaching 10,3 Log CFU/mL, while the starter culture showed a lower survival 8,3 Log CFU/mL by day 21 of storage.

Discussion: The results suggest an adaptation strains to carrot and mango pulp, they assimilate phytochemicals and bioactive compounds to be able to survive during storage. Microbial growth and adaptation have a strong correlation with the decrease in pH due to the enzymatic complex that assimilate carbon sources. The prebiotic potential of oak honeydew is remarkable due to the composition of carbon molecules. The symbiotic bioyogurt represent an opportunity to generate value in dairy fermented products