

3rd International FOOD SCIENCE, PROBIOTICS, NUTRITION & MICROBIOME CONFERENCE November 28-29, 2019 | Kuala Lumpur, Malaysia

Effect of Date Syrup Extract on Enhancement of Viability of Micro-Encapsulated Probiotics during Storage at 4 °C/15ds

Saddam S. Awaisheh
Al-Balqa Applied University, Jordan

Losing viability and counts reduction of probiotics during manufacturing and storage represent an increasing challenge to probiotics industry. Micro-encapsulation (ME) is believed to maintain probiotics viability during such conditions. However, modifying the environment surrounding probiotics inside encapsulation material like raising water activity and adding sugar sources may effectively enhance probiotics viability. Accordingly, this study aimed to evaluate the effectiveness of 3 concentrations (1, 2 and 3%) of date syrup (DS) in enhancing viability of 2 probiotic isolates (SAP104 and SAP109). Probiotics were then ME with and without DS that gave maximum probiotic growth rate; and then viability of ME-probiotics was evaluated upon storage at 4 °C/15ds. Results showed that the 3% DS induced the maximum probiotics growth rate, followed by 2% then 1%. At 3% DS, the probiotics growth rate reached to 0.351 and 0.852 for SAP104 and SAP109 isolates as Abs at 620nm, respectively. For the ME-probiotics viability, the results were very striking, where the count of probiotics ME with DS were far significantly higher than probiotics ME without DS. After 15ds, the counts of probiotic ME with DS increased from 5.55×10^6 and 4.49×10^6 to 4.43×10^8 and 5.62×10^8 CFU/ml for SAP104 and SAP109, respectively. Whereas the counts of ME-probiotics without DS decreased from 6.5×10^6 to $< 10^5$ CFU/ml. Our results showed that probiotics count and viability were increased and maintained throughout the period of study due to the addition of DS into ME material. This may present a solution to the problem of losing probiotics viability during manufacturing and storage.

Notes: