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Stability of apple juice fermented and fortified by microencapsulated *Lactobacillus plantarum* 299V during storage

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The objective of this research was to check the effect of different polysaccharides (maltodextrin (MD) and resistant starch (RS)) with diverse formulation, fermented and fortified method, and different temperatures (4°C and 25°C) on the viability of *Lactobacillus plantarum* 299V during storage in apple juice. The pH and cell number during the fermentation and storage process were measured. The results revealed that the change of pH in apple juice of *Lactobacillus plantarum* 299V varies from sample to sample, core-to-wall ratio=1:1, MD; core-to-wall ratio=1:1, MD:RS=1:1; and core-to-wall ratio=1:1, RS at 48 hours were 4.22, 4.31, 4.74, respectively. The pH changes of samples in the group (4°C, Fermented), (25°C, Fermented), and (25°C, Fortified) had the same trend and reached the state of steady pH after storage for 5, 4 and 4 weeks, respectively and the values were in the range of 3 to 4. Besides, samples in the group (4°C, Fortified) haven't reached the state of steady pH after storage for 11 weeks. The best conditions for the application of *Lactobacillus plantarum* 299V in apple juice to achieve the goal with high survival ability in this functional beverage are listed as following: core-to-wall ratio=1:1, MD:RS=1:1 for the coating material, with a fortified method, and storage at 4°C. The viability of the cells was 8.28 CFU/g after 11 weeks storage. The finding in this study may have guidance in the production of fortified apple juice in the industry.