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Evaluation of the composition and quality of watermelon and mango juices fermented by *Levilactobacillus brevis*, *Lacticaseibacillus casei* and *Pediococcus pentosaceus* and subsequent simulated digestion and storage

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Abstract

This study evaluated the composition of watermelon and mango juices fermented by *Levilactobacillus* (L.) *brevis*, *Lacticaseibacillus* (La.) *casei* and *Pediococcus* (P.) *pentosaceus* and subsequently simulated in vitro digestion and storage (4°C for 35 days). After fermentation (24 h), the microorganisms grew (~9 log CFU mL⁻¹) and fermented watermelon (FWJ) and mango juice (FMJ) became more red and yellow, respectively. DPPH (2,2-diphenyl-1-picrylhydrazyl) and ABTS (2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid)) free radical scavenging capacities significantly increased in L. *brevis* and La. *casei* FMJ. After in vitro digestion, all the strains except La. *casei* in FMJ significantly decreased ($P < 0.05$), and P. *pentosaceus* survival was 2.4 and 4.5 times higher in FWJ and FMJ, respectively, than as pure culture. After storage, cell counts remained above 7 log CFU mL⁻¹, and no changes in quality attributes, total phenolic content and antioxidant capacity were recorded in P. *pentosaceus* FMJ. Thus, watermelon and mango are suitable matrices for lactic acid bacteria.