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Stability of novel probiotics in fruit juices

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Statement of the Problem: New probiotic products are globally growing and most companies attempt to own their specific strain. There were many probiotic strains isolated from several sources in Thailand. The use of these isolated strains to develop new alternative fruit-base product was a challenge pushing the novel probiotic to the commercial level.

Aim: This research aims to investigate the viability in fruit juices of three novel probiotic strains, *Lactobacillus paracasei* MSMC39-1, *Lactobacillus casei* MSMC39-3, and *Lactobacillus salivarius* MSMC120-2, which were isolated in Thailand. From the existing research, MSMC39-1 and MSMC39-3 were able to modulate immune system by decrease the TNF- α production and MSMC120-2 showed the ability to induce IL-12 which involving antitumor activity.

Methodology & Theoretical Orientation: The free probiotic cells (8 log CFU/ml) were inoculated into orange and guava juices and stored at 4°C for 35 days. Encapsulation technique with alginate and chitosan was used to find the possibility to enhance cell survival. The viability of the target strain was assessed through MRS agar plate count method.

Findings: Free *L. casei* MSMC39-3 cells showed the best stability in orange and guava juices. Encapsulation technique could be used to increase viability of the cells significantly (p 0.05). The encapsulated *L. salivarius* MSMC120-2 showed the highest rate of survival in both fruit juice. The encapsulation had no effect on chemical and physical properties of the juices such as pH, total soluble solid and total phenolic of the juices (p>0.0) during storage.

Conclusion & Significance: Orange and guava juice could be used as carrier for alginate and chitosan encapsulated *L. salivarius* MSMC120-2. The storage time was up to 21 days at 4°C with no change in the juice chemical and physical properties. This could be the new alternative fruit-base product containing antitumor probiotic that suit Asian people.

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