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Development of a Potential Probiotic Lozenge containing *Enterococcus faecium* CRL 183

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Statement of the problem: Probiotics and oral health have evoked new researches since results have shown that they can promote important benefits to the oral cavity. Lozenges are candies that can deliver a variety of compounds as they disintegrate slowly in the mouth. Thus, in this study, a diet lozenge with the microencapsulated probiotic strain *Enterococcus faecium* CRL 183 was developed.

Methodology and Theoretical orientation: The microbiological, physicochemical and sensorial characteristics were analyzed and the anticariogenic potential of the strain was also evaluated.

Findings: The results showed that the complex coacervation microencapsulation technique enables higher viability during storage at room temperature. Lozenges were produced through three treatments: PC–control formulation; PPP1–probiotic formulation; PPP2–probiotic formulation with inulin. The probiotic strain had the viability decreased after lozenges production and during the storage from 5.53-4.83 log CFU/g at the beginning to 1.05-1.86 log CFU/g after 28 days, for both PPP1 and PPP2. Formulations were different concerning water activity, moisture and color ($p < 0.05$). All formulations remained microbiologically safe during the storage period. Association of probiotic bacteria and inulin improves the lozenges flavor acceptance and the purchase intent. The anticariogenic evaluation showed that the probiotic bacteria were able to survive in saliva and inhibit the growth of *Streptococcus mutans* ATCC 25175 in this study.

Conclusion and significance: The lozenge with *E. faecium* CRL183 and inulin represents an alternative to the diversification of the probiotic segment, which aggregates anticariogenic potential. However, a process refinement and use of gas resistant packaging to preserve the probiotic viability, is necessary.

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