The anti-bacterial effect of mangostin in various solvents on Streptococcus mutans

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The fruit hull of mangosteen has been used in traditional medicine for the treatment of wound infection and diarrhea. The results from various studies have indicated that mangostin, an extract from the fruit hull of mangosteen, has the anti-bacterial effects against Staphylococcus aureus, Streptococcus mutans, Escherichiae coli, Shigella dysenteriae, Enterococcus faecalis. This property makes mangostin an attractive candidate for developing mouthwash. This study was conducted to determine the anti-bacterial effect of mangostin in various solvents against Streptococcus mutans. The solvents included 3% Cremophore EL, 2.5% Tween 80 and 40% PEG 400. Streptococcus mutans was grown in TSB broth until the O.D. of 0.4 was observed. The microorganism was then incubated with 10 μg/ml of mangostin in each solvent for 1 minute and plated on blood agar plates. After 24 hours of incubation in 5% CO_2 tension, bacterial growth was determined by counting colony forming units on the plates. Comparing to each control group, we found that the percent of survivals of Streptococcus mutans in mangostin with PEG 400, Tween 80 and Cremophore EL were 10.95%, 71.82% and 75.82%, respectively. These results suggest that 40% PEG 400 could be an appropiate solvent for mangostin in inhibiting Streptococcus mutans growth.

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