Table 1.-- Sugar Alcohols and Plaque pH, Acid Production

Study	Study Design	Subjects	Methods	Results	Comments
Bibby and Fu, 1985 (Ref. 38)	Study to evaluate in vitro method for determining plaque pH	Adult volunteers	Fresh plaque was collected from adult volunteers who had suspended oral hygiene for 24 to 48 hours (hr) and who had not eaten for 2 hr prior to plaque removal. Plaque was connected to pH meter and strip chart recorder. Methods described in detail in the study. Sweeteners used were: HSH (mostly SOR), SOR, MANN, isomaltulose, ISO, sorbose, X, saccharine (SACC), and aspartame (ASP). All but SACC and ASP were prepared as 0.1, 1.0, and 10% aqueous solutions. SACC and ASP were diluted in water to give sweetness equivalents of 0.1, 1.0 and 10% S solutions. Experiment 1: Plaque responses to SOR, MANN, X were compared to S, F, maltose, raffinose, and corn starch. Exp. 2: other sweeteners were used.	Plaque pH in presence of sugar alcohols after 20 min of incubation Soln Conc (w/v) Substrate 0.1% 1.0% 10% Sucrose 5.43 4.82 4.15 Fructose 5.47 4.39 4.14 Maltose 5.24 4.53 4.22 Raffinose 5.75 5.03 4.30 Mannitol 5.67 5.54 5.22 Sorbitol 6.30 6.17 5.82 Xylitol 6.07 6.13 6.33 Corn starch 5.55 4.85 4.29 Mean pH of plaque after incubation for 20 min with solutions up to 10% of isomaltulose resulted in a low pH similar to that of S. Increasing concentrations of ISO and HSH resulted in lowered pH of plaque compared to the pH in the 0.1% solution of the sweetener. The lowest pH values reported were about 5.6 (ISO) and 5.0 (HSH). Results of incubation of plaque with both S and X showed that X did not interfere with S fermentation.	The 10% solution of HSH resulted in a final plaque pH that is detrimental to dental enamel. Authors state that the HSH was mainly SOR. The results showing that plaque pH increases with increasing concentration of X, while the pH of all the other sugars tested decreased, provides support for the contention that X is nonpromotional for caries. For SOR, MANN, HSH, and ISO, the trend towards decreasing pH with increasing concentration, suggests that at a slightly higher concentration (>10%), the pH might dip below the level required for demineralization of enamel (pH 5.5).