Non-cariogenicity of erythritol as a substrate.

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Source
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Abstract
Erythritol is a sugar alcohol which is obtained through a cultivation of glucose and Aureobasidium sp. The sugar is about 70-80% as sweet as sucrose and is also non-hygroscopic. The effect of erythritol on cariogenicities of mutans streptococci (serotype a-h) and certain oral microorganisms was studies. Erythritol was not utilized as a substrate for the growth, lactic acid production and plaque formation of mutans streptococci (serotype a-h). It did not serve as a substrate for cellular aggregation of mutans streptococci (serotype d, g, h) and was not utilized water-insoluble glucan synthesis and cellular adherence by glucosyltransferase from S. mutans PS-14 (c) or S. sorbrinus 6715 (g). Erythritol was not also utilized for the growth and lactic acid production of certain oral microorganisms although some growth was seen with Actinomyces viscosus. SPF SD rats infected with S. sobrinus 6715 were fed a diet containing 26% erythritol or 26% sucrose for 53 days. A significantly (p less than 0.01) lower caries score (mean +/- SE; 3.1 +/- 0.5) was observed in the rat fed a diet containing erythritol than the control (60.5 +/- 2.0). The caries inhibition rate is 94.9%. Also, rats infected with S. mutans PS-14 were fed a diet containing 56% erythritol chocolate or 56% sucrose chocolate for 58 days. The mean total caries score of rats fed a diet containing 56% erythritol chocolate was 6.7 +/- 0.8, while the mean total caries score of rats fed a diet containing 56% sucrose chocolate was 82.8 +/- 2.8. The value between both groups was significant at 0.01 level, and the caries inhibition rate is 91.9%.

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