Effects of Bioactive Compounds in Berry Seed Extracts on Cariogenic and Periopathogenic Bacteria

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An environmentally friendly solution to utilize fruit wastes as new raw materials by sustaining the fruit seeds for therapeutic use to inhibit certain bacteria due to their bioactivity and chemical composition would be ideal. Extracting bioactive compounds for treatment against dental caries and periodontal disease is a natural way to possibly limit the bacterial growth causing these prevalent oral diseases. Vaccinium corymbosum seed extract (VCSE) and Rubus fruticosus seed extract (RFSE) are rich in phenolic compounds, fatty acids, flavonoids, ellagitannins, and anthocyanins, known to have anti-inflammatory, anti-carcinogenic and antioxidant biological properties. Streptococcus mutans and Fusobacterium nucleatum are prevalent oral bacteria during the progression of these two oral diseases. Intentions were to determine if berry seed extracts derived from VCSE and RFSE would inhibit the growth of S. mutans and F. nucleatum at different concentrations individually and in mixtures determined by the minimum inhibitory concentration. The synergistic effects of the bacterial mixtures in all concentrations displayed the greatest zones of inhibition, from 25.6-32.5mm indicating mixtures at minimal concentrations can enhance bacteriostatic and bactericidal efficacy against S. mutans and F. nucleatum. This shows there is less potential these pathogens cause tooth, bone, and gingival damage and a potential ecological role for the fruit seeds bioactive compounds to act as bacteriostatic and bactericidal agents with more natural methods to help therapeutically treat common oral disease bacteria with less chemicals for optimal patient care.

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