In vitro antimicrobial activities against cariogenic streptococci and their antioxidant capacities: a comparative study of green tea versus different herbs

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摘要

Abstract

The antimicrobial activity against cariogenic bacteria, total antioxidant capacity and phenolic constituents of methanolic extracts from 11 herbs were investigated and compared with those of green tea (Camellia sinensis). Among the 12 tested herbs, eight herbal extracts could inhibit the growth of Streptococcus sanguinis. Jasmine, jiaogulan, and lemongrass were the most potent, with minimum inhibitory concentrations (MIC) of 1 mg/ml, while green tea was less effective, with a MIC of 4 mg/ml. Among them, only rosemary could inhibit the growth of S. mutans at a MIC of 4 mg/ml. Total antioxidant capacities of herbal extracts were analyzed by three different assays, including 2,2-diphenyl-1-picrylhydrazyl (DPPH·) radical scavenging activity, trolox equivalent antioxidant capacity (TEAC) and oxygen radical absorbance capacity (ORAC). Regardless of the assays used, green tea exhibited the highest antioxidant capacity, followed by osmanthus. Wide variations in total phenolics and total flavonoids of herbal tea extracts were observed. Chlorogenic acid was detected in high amount in honeysuckle and duzhong. These data suggest that rosemary is a potent inhibitor of oral streptococci, and green tea and osmanthus may be effective potential sources of natural antioxidants