

The antimicrobial and antiviral activity of polyphenols from almond (*Prunus dulcis* L.) skin.

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Nutrients

11(10):E2355.

Abstract:

Due to their antimicrobial and antiviral activity potential in vitro, polyphenols are gaining a lot of attention from the pharmaceutical and healthcare industries. A novel antiviral and antimicrobial approach could be based on the use of polyphenols obtained from natural sources. Here, we tested the antibacterial and antiviral effect of a mix of polyphenols present in natural almond skin (NS MIX). The antimicrobial potential was evaluated against the standard American Type Culture Collection (ATCC) and clinical strains of *Staphylococcus aureus*, including methicillin-resistant (MRSA) strains, by minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC). Herpes simplex virus type I was used for the antiviral assessment of NS MIX by plaque assay. Furthermore, we evaluated the expression of viral cascade antigens. NS MIX exhibited antimicrobial (MIC values of 0.31–1.25 mg/ml) and antiviral activity (decrease in the viral titer ** $p < 0.01$, and viral DNA accumulation * $p < 0.05$) against *Staphylococcus aureus* and HSV-1, respectively. Amongst the isolated compounds, the aglycones epicatechin and catechin showed the greatest activity against *S. aureus* ATCC 6538P (MIC values of 0.078–0.15 and 0.15 mg/ml, respectively), but were not active against all the other strains. These results could be used to develop novel products for topical use.

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