

***In vitro* antimicrobial activity of a white grape juice (*Vitis vinifera*) extract**

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Consumption of grapes (*Vitis vinifera*) and grape products has been associated to beneficial effects related to the presence of polyphenols, mainly flavonoids and phenolic acids, with antioxidant, anti-inflammatory, antimicrobial, antiviral and cancer preventive properties.

Due to the increased antibiotic resistance as well as the difficulty to inhibit and eradicate the Gram-positive and Gram-negative biofilms formation, the antimicrobial properties of natural compounds has been gaining attention.

In the present study we evaluated the antimicrobial effect of white grape juice extract (WGJe) against a range of Gram-positive and Gram-negative bacteria, yeasts and the fungus *Aspergillusniger*. Moreover, antimicrobial effect of polyphenols-rich white grape juice extract was evaluated against clinical isolates of *S. aureus*, both methicillin-resistant and methicillin-sensitive, and *S. epidermidis*. Furthermore, the same extract was tested on the production of bacterial biofilms *in vitro*.

WGJe was effective against all Gram-positive bacteria tested, *Staphylococcus aureus* being the most sensitive strain (MIC values between 3.9 and 62.5 µg/ml). The effect was bactericidal at the concentration of 500 µg/ml. Amongst the Gram-negative bacteria, *Escherichia coli* was the only susceptible strain (MIC and MBC of 2000 µg/ml). Moreover, WGJe inhibited the biofilms formation of *S. aureus*, *S. epidermidis*, *E. coli* and *Pseudomonas aeruginosa* in dose- dependent manner.

The presented results could be used to develop novel strategies for the treatment of skin infection and against potential respiratory pathogens. WGJe could also be used in combination with antibiotics to help eradication of resistant bacterial biofilms.