EFFECT OF RED WINE AND GRAPE JUICE AGAINST FOODBORNE PATHOGENS AND PROBIOTICS

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ABSTRACT

Numerous studies have been documented describing the burgeoning health benefits of red wine consumption, including anti-oxidative, anti-carcinogenic, anti-inflammatory and anti-cardiovascular and antibacterial properties. This research was aimed to analyze the effects of red wine and grape juice against foodborne pathogens, *Helicobacter pylori*, *Listeria monocytogenes*, *Escherichia coli* O157:H7, *Salmonella* Typhimurium and *Shigella boydii*, and the probiotic bacteria, *Lactobacillus acidophilus*, *Lactobacillus paracasei*, *Lactobacillus rhamnosus*, and *Bifidobacterium animalis*.

Our work showed, via *in vitro* tests, the antimicrobial activity of specific red wines against various foodborne pathogens. This study also demonstrated that red wines did not drastically affect health beneficial probiotic cultures as they did pathogens. The inhibitory action of Barton Merlot, Pinot Noir and Shiraz was extremely rapid compared to Zinfandel and Cherry wine. On the other hand, all four probiotic strains tested survived exposure to up to 80% of each red wine, even though the decrease in numbers was significant from the initial 10^7 CFU/mL. The pathogens were inhibited by up to 50-60% red grape juice. This indicates that the alcohol present in wines is not the only factor involved in their bactericidal effect. The inhibitory effect of Tropicana grape juice was extremely rapid against the probiotics tested. All four probiotics tested were significantly different in their inhibitory pattern ($P \leq 0.05$).