

PLANT EXTRACTS AS INHIBITORS OF FOODBORNE PATHOGENIC BACTERIA

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The CDC estimates that 48 million people get foodborne illness each year, 128,000 are hospitalized and 3,000 die (CDC).

Many strategies were used to inhibit the growth of undesirable microorganisms, usually by using chemical agents that exhibit antimicrobial activity.

Due to rapid development of microbial resistance against chemotherapeutic agents (mostly antibiotics), it has become essential currently to screen effective, safe, cheap, and available therapeutics from various medicinal plants like berries for their potential antimicrobial effect. Our study was conducted to investigate the efficacy of several berry extracts against a range of food-borne pathogens. The antibacterial activities were investigated against various Gram-negative and Gram-positive foodborne pathogens. To establish the antimicrobial activity of plants extracts, the following *in vitro* methods were used: well diffusion method (qualitative), successive dilutions (quantitative) and the spectrophotometric method. As natural preparations with bacteriostatic effect were used: sea buckthorn, aronia, grapes, rosehip, hawthorn.

It has been demonstrated that the lowest inhibitory and bactericidal concentration on *S. aureus* is found in white sea buckthorn powders, followed by rosehip groats and grape marc. In the case of *E. coli* and *K. pneumoniae*, only white sea buckthorn powder showed minimal inhibitory and bactericidal concentrations. According to the obtained data, we noticed that sea buckthorn has the most pronounced effect on tested bacteria. It was determined MIC and the lowest concentration was for sea buckthorn.

In conclusion we can say that using plant powders as food preservatives would be a solution to prevent foodborne illness and possibly resolve the problem of antibiotic resistance in the future and optimization of long-term food storage.

Keywords: antibacterial effect, diffusimetric method, plant extract, *in vitro*

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