

## ANTIMICROBIAL ACTIVITY OF SEA BUCKTHORN AND CHOKEBERRY POWDERS ON PATHOGENIC BACTERIA

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The problem of providing consumers with safe and healthy food is very current. In order to reduce the degree of food microbial contamination, antimicrobial activity, minimum inhibitory concentrations (MIC) and minimum bactericidal concentrations (MBC) of sea buckthorn (*Hippophae rhamnoides* L.) and chokeberry powders (*Aronia melanocarpa*) against the pathogenic microorganisms *Staphylococcus aureus*, *Escherichia coli* and *Klebsiella pneumoniae*. In addition, the total content of carotenoids, polyphenols and antioxidant activity by the DPPH test were determined. Following the tests performed, it was found that the vegetable powders performed an antimicrobial activity of different levels against all the pathogenic microorganisms investigated. Sea buckthorn powder had a more pronounced antimicrobial activity to pathogenic microorganisms than chokeberry powder. The diameter of the inhibition zone was 22 mm for *S. aureus*, 18 mm for *E. coli* and 17 mm for *K. pneumoniae*. In the case of chokeberry powder, the antimicrobial activity was reduced 2.2 times compared to *S. aureus*, 2.6 times compared to *E. coli* and 2.4 times - *K. pneumoniae*. The antimicrobial potential of vegetable powders is probably attributed to the of polyphenolic compounds content, especially quercetin and gallic acid derivatives. Gallic acid can change bacterial hydrophobicity, while quercetin leads to bacteriostasis by damaging cell walls and membranes. MIC and MBC of sea buckthorn and chokeberry powders on the studied pathogenic microorganisms were determined. It was shown, *S. aureus* have an important sensitivity to all the powders studied. Sea buckthorn powder had the lowest MIC and MBC, the values being 1.95 mg/mL and 3.90 mg/mL respectively, and chokeberry powder had the highest MIC and MBC, 15.63 mg/mL and 31.25 mg/mL, respectively. *E. coli* and *K. pneumoniae* were resistant to chokeberry powder. The sensitivity of pathogenic microorganisms to vegetable powders may be due to the structure of the cell wall and outer membrane. Thus, sea buckthorn and chokeberry powders have demonstrated an important antimicrobial potential on some pathogenic microorganisms studied and can be used in the food industry to reduce the degree of food microbial contamination.

**Keywords:** antimicrobial activity, sea buckthorn, chokeberry, pathogenic bacteria

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