

F.49. THE ABILITY OF SEA BUCKTHORN TO FIGHT AGAINST *L. MONOCYTOGENES*

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Abstract. Worldwide, poisoning and food poisoning are one of the most severe public health and industrial development problems. Foodborne listeriosis is one of the most serious and severe foodborne diseases. This is an alarming infection usually caused by eating food contaminated with the bacterium *Listeria monocytogenes*. An estimated 1,600 people get listeriosis each year, and about 260 die. In past outbreaks, foods involved included ready-to-eat meat products, such as frankfurters, meat spread (paté), smoked salmon and fermented raw meat sausages, as well as dairy products (including soft cheeses, unpasteurized milk and ice cream) and prepared salads (including coleslaw and bean sprouts) as well as fresh vegetables and fruits. Who is most at risk to get infected with *Listeria*? Several segments of the population are at increased risk and need to be informed so that proper precautions can be taken. According to the FDA, CDC, individuals at increased risk of being infected and becoming seriously ill with *Listeria* include the following groups: Pregnant women; Newborns - can develop life-threatening disease from perinatal and neonatal infections; Persons with cancer, diabetes, kidney, or gastrointestinal disease; Individuals with HIV/AIDS; Persons who take glucocorticosteroid medications; Persons with weakened immune systems and elderly. A major problem threatening the food industry is contamination with foodborne microbes of human origin resulting from improper handling and processing. *L. monocytogenes* is a foodborne pathogen that can cause severe invasive human illness (listeriosis) in susceptible patients. *L. monocytogenes* is a Gram-positive, facultatively anaerobic, non-spore forming rod. This bacteria is widely distributed in the environment and has been isolated from a variety of sources, including soil, vegetation, silage, fecal matter, sewage and water. Today we are increasingly looking for ways to combat the resistance of microorganisms to antibiotics and possibilities to substitute synthetic additives with natural ones, extracted from various plants. Sea buckthorn is rich in carotenoids, tocopherols, sterols, lipids, ascorbic acid, flavonoids, triterpenes. These compounds have biological and therapeutic activities such as antioxidant, antitumoral, immunomodulatory properties and antibacterial properties. The microbiostatic activity of some plants is a promising source of alternative solutions for their use in order to reduce microbial contamination of food. The objective of the study was to determine the antibacterial activity of sea buckthorn in vitro on *L. monocytogenes* ATCC 19118 and *L. monocytogenes* EGDe. The antimicrobial effect of sea buckthorn was achieved by the agar diffusion procedure and successive dilutions in order to determine the minimum inhibitory concentration and minimum bactericidal concentration. According to the obtained data, we notice that sea buckthorn has the most pronounced effect on *Listeria*, the diameter of the growth inhibition zone is 22.5 mm (well diffusion method). Identification of minimum inhibitory concentration (MIC) and minimum bactericidal concentration was performed by

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double fold dilution. The minimum inhibitory concentration of sea buckthorn for *L. monocytogenes* was 62.5 mg/mL. The sea buckthorn has shown promising antimicrobial potential against listeria and can be used in the food industry to reduce the microbial contamination of raw material and food. It is important to mention that the microbiostatic activity of plant extracts rich in phenolic compounds represents a promising source of alternative solutions for their use in order to substitute certain food preservatives of synthetic origin. The expectation is to reduce the use of synthetic additives and antibiotics as preservatives.

Keywords: *L. monocytogenes*, sea buckthorn, antibacterial activity.