



## Research Article



# *In vitro* antibacterial effect of various berries on *Listeria monocytogenes* as food borne pathogen

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*Listeria monocytogenes* is a food borne pathogen and causes illnesses with a high mortality rate in susceptible populations. It is often incriminated in outbreaks of human listeriosis. Increasing interest in the health benefits of various berries has led to investigation of their antibacterial activity. Causative agent can multiply at refrigerator temperatures, is resistant to disinfectants, and adheres to various surfaces. Native berries were assessed for their ability to inhibit the growth of bacteria *L. monocytogenes*. Extracts and powder berries – sea buckthorn (*Hippophae rhamnoides* L.), rosehip (*Rosa canina* L.), black chokeberry (*Aronia melanocarpa* (Michx.) Elliott), grape marc (*Vitis vinifera* L.) and hawthorn (*Crataegus oxyacantha* L.) were used. All plant materials come from the Rudi-Arionesti Natural Complex in the Republic of Moldova in 2017–2019. In previous studies it has been found that sea buckthorn, rosehip, black chokeberry, and hawthorn have antimicrobial effects on pathogenic microorganisms responsible for food alteration. Bacteria showed varying susceptibilities to the berry fruits. Antimicrobial properties were evaluated using well diffusion method and broth dilution method. According to the results obtained, sea buckthorn was found to have the most pronounced effect on *Listeria monocytogenes*, the diameter of the growth inhibition zone being 32 mm, followed by rosehip samples 26 mm. The minimum inhibition concentration (MIC) and the minimum bactericidal (MBC) were determined.

**Keywords:** chemical compositions, leaves, antioxidants, antibacterial activity

## Introduction

Food borne illness is a common, costly, sometimes life-threatening disease, but largely preventable and are public health problem. Many disease-causing agents can contaminate aliments, causing food poisoning. Researchers have identified more than 250 food borne illnesses. Most of them are infections, caused by a variety of bacteria, viruses, and parasites (Lakshmi and Rajendran, 2013). It is estimated that 48 million

people get a food borne illness (or food borne infection) each year, 128,000 are hospitalised, and 3000 die. According to the WHO, an estimated 600 million people get sick each year, or almost one in 10 people on the planet, from food contaminated with microorganisms or chemicals, and 420000 die, resulting in the loss of 33 million years of healthy life (WHO, 2015).

Listeriosis is a life-threatening disease, especially for immunocompromised people and pregnant women.

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