

THE ANTIMICROBIAL ACTION OF THE FRACTIONS OF METHANOL, ACETONE AND AQUEOUS EXTRACTS

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Summary. The antimicrobial activity of the methanol and acetone extracts of the first and second year wild marjoram, the methanol, acetone and aqueous extracts of marjoram, rosemary, tarragon and perilla was assessed.

Undesirable in food products the yeasts and bacteria were used in the test cultures. In assessment of antimicrobial activity of the plant extracts, the following eight bacterial test cultures *Listeria monocytogenes*, *Pseudomonas aeruginosa*, *Salmonella typhimurium* (ATCC 14028), *Staphylococcus aureus* (ATCC 25923), *Escherichia coli* (ATCC 25922), *Bacillus cereus* (ATCC 10876), *Micrococcus luteus*, *Enterobacter aerogenes*, and eight yeast species (*Debaryomyces hansenii*, *Trichosporon cutaneum*, *Kluyveromyces marxianus var. lactis*, *Sacharomyces cerevisiae*, *Candida parapsilosis*, *Torulaspora delbrueckii*, *Pichia kluyveri*, *Rhodotorula rubra*) were used. The antimicrobial activity was assessed using the agar diffusion method.

The extract of wild marjoram possess antimicrobial properties and was effective against the studied cultures, however, the intensity of the effect depended in great degree on the age of the plant – the extracts prepared from the raw material of the first-year plant did not possess antimicrobial properties. The antimicrobial action of the fractions of methanol, acetone and aqueous extracts differed in their intensity and culture-related specificity. It was revealed that acetone extract of marjoram was effective inhibitor of all tested cultures. The water extracts had inhibitory effect only on *St. aureus* and *M. luteus*. The microorganisms were sensitive to the solution of acetone and methanol tarragon extracts, except for *B. cereus* and *E.coli*, which were not affected by the methanol extract.

It was concluded that the methanol extract was most effective, however, lower activity was determined for acetone extracts. Water extracts of plants showed lowest effectivity or did not possess inhibitory effect.

Keywords: antimicrobial properties, plant extracts.