INFLUENCE OF MEDIA PARAMETERS ON ANTIMICROBIAL PROPERTIES OF PLANT EXTRACTS

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Summary. Antimicrobial properties of plants extract were assessed using agar diffusion method and applying different pH (4.0 and 5.5) and a_w (2.5 and 4.0 % NaCl) of media.

It was found that acetone and methanol extracts of savory, marjoram and tarragon were effective inhibitors of *St. aureus* after modification of media. Consequently the reduction of water activity (a_w) and pH of media increases the antimicrobial effect of extracts. Water extracts of plants were less effective; however, the change of media parameters enabled to improve antimicrobial effect of plant water extracts as well. The reduction of media a_w resulted in lower inhibitory effect of marjoram and tarragon extracts, while the effect of reduction of media pH on bacteria growth was more remarkable. The microorganisms were particularly sensitive to the solution of different savory extracts. The extracts isolated from tarragon were less effective against *S. typhimurium*. In some cases the effect of water activity was not observed; for instance antimicrobial effect of methanol extract of marjoram in standard media was similar with that in media of lower a_w. Acetone extract of marjoram was effective inhibitor; inhibition zones were formed in the all applied media. The extracts of savory had bigger inhibitory effect on *S. typhimurium* when pH of media has been reduced.

The addition of citric acid to the media enhanced antimicrobial effect of extracts against *M. luteus*, while the change of a_w did not have any effect. However, antimicrobial effect of water extract of tarragon increased depending on both factors.

The results show, than the sensitivity of bacteria to plant extracts depended on the individual properties of test cultures. Furthermore, the antimicrobial effect may be strengthened by the decrease of media pH or lowering of a_w by salt additives. The antimicrobial properties of extracts also depend on the temperature of microorganism cultivation.

The extract of lovage possesses weak inhibitory effect in minced meat; in terms of stabilization total and coliform count of bacteria.

Keywords: plant extract, media a_w and pH, antimicrobial properties.