

ANTIMICROBIAL EFFECT OF NATURAL ANTIMICROBIAL AGENTS AGAINST FOODBORNE PATHOGENS

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Besides that foodborne infections and intoxications cause great danger for human health they have also adverse impact on the economics. Alternative food preservation techniques to produce safer foods e.g. systems containing natural antimicrobial agents have recently gained popularity. The consumers prefer foods with no chemical additives without shortened shelf-life. In this sense, natural antimicrobials have become promising alternatives for hurdle technology. However, most of the natural antimicrobials have limited spectrum of activity. Therefore, more efficient systems could be developed by using these antimicrobials in combinations. Activated lactoferrin (ALF) and rosemary extract, which are the agents used in this study have already been reported to be antimicrobially active against some selected microorganisms. ALF is an immobilized form of lactoferrin, and is present in almost all mammalian secretions e.g. milk, tears and saliva. Rosemary is a plant that has been used since ancient times as a spice and remedy for many illnesses. The aim of this study was to determine the individual and combined antimicrobial activities of these natural antimicrobials agents against *Salmonella enteritidis* and *Escherichia coli*. Minimum inhibitory concentration (MIC) value for each antimicrobial agent was determined by using 96 well-plate method. To obtain the inhibition profiles, a wide range of concentrations of each agent were tested on the bacteria at a concentration of 1×10^4 cfu/ml. Data was collected every 2 h for a period of 24 h by turbidimetric measurements. ALF reduced the microbial load of *S. enteritidis* and *E. coli* at and above 2% and 1.5%, respectively. Rosemary extract showed no inhibitory effect against tested pathogens. However, these two natural antimicrobials acted synergistically when they were tested together and rosemary extract enhanced the activity of ALF at least four times. Result of this study indicates that use of ALF in combination with rosemary extract could be very effective in preventing food spoilage.