Antimicrobial Effects of Pepper, Parsley, and Dill and their Roles in the Microbiological Quality Enhancement of Traditional Egyptian Kareish Cheese

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Abstract:
This study was designed to assess the application of some edible plants including cayenne, green pepper, parsley, and dill to Kareish cheese and to evaluate the antimicrobial activity of these plant materials against natural microflora, coliforms, molds, and Staphylococcus aureus. Twelve different concentrations of ethanol extract of the plants were prepared for determination of the minimal inhibitory concentration. Cayenne and green pepper extracts showed highest activity followed by dill and parsley against S. aureus. Addition of cayenne or green pepper to Kareish cheese during manufacture revealed that both plants were able reduce the S. aureus population to undetectable level within the first and second days of storage. To study the effect of combining plant materials on the microbiological quality of ready-to-eat Kareish cheese, the total bacterial count, coliform count, and yeast and molds counts were determined. It has been found that addition of plant materials to Kareish cheese reduced the total bacterial and coliform populations. All concentrations of cayenne, green pepper, dill, and parsley (9%) completely reduced the yeast count within 2 hours. Cayenne and green pepper completely reduced the mold count within 2 days, whereas parsley and dill were found to be less effective. Kareish cheese prepared with 1% cayenne pepper and 3% and 6% each of green pepper, dill, and parsley were found strongly acceptable to the consumer and considered the most preferable type. Therefore, this study revealed that pepper, parsley, and dill exhibited antibacterial activity against natural microflora, coliforms, yeast and molds, and S. aureus in Kareish cheese, and the addition of these plants is acceptable to the consumer and may contribute to the development of new and safe varieties of Kareish cheese.

Published In:
Foodborne Pathogens and Disease., Vol. 7 - No. 4, pp. 411 - 418