

DEVELOPMENT OF A STERILIZED MEATBALL PACK WITH A SUITABLE PACKAGE

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The importance of sterilized meat products is that they do not require refrigeration facilities. As they do not need refrigerated trucks for transportation or deep freezers for storage at wholesale and retail outlets, they are advantageous for producers as well as consumers. They can be an effective alternative to unsterilized meat products in terms of reducing electricity and fuel cost and for individuals with no refrigeration facilities. Meatballs which is a favorite meat product is not currently available in sterilized form. Therefore, this study was conducted to develop sterilized meatballs with a suitable retort pouch.

Meatballs were prepared in the laboratory using ingredients and procedure similar to those used in preparation of the commercially available product. Sterilization of regular meatballs leads to melting and reduction of emulsion stability. Therefore, several preliminary trials were carried out by reducing chopping rate, increasing mixing rate, and adding Carageenan and modified starch to improve emulsion stability. The samples were packed in a special aluminum foil and sterilized at 116^o C for 20 minutes. The final product that reached satisfactory emulsion stability after sterilization contained mechanically separated meat (52.5%), thigh-trimmings (15%), loose meat (5%), 5% of vegetable fat (FRYTOL), Carageenan (0.5%), B-990 (2%), B-994 (3%) and Soy-protein isolate (1.5%), Crumbs (6.5%), Corn Syrup (1%) and ice water (8%). Commercial sterility test carried out on the final product showed negative results for both aerobic and anaerobic bacteria, which indicate the temperature-time combination (116^o C for 20 minutes) is adequate for sterilization of the product.

Sensory evaluation test conducted using 12 professional panelists, for the product developed and commercially available meatball showed no significant difference ($P > 0.05$) under Friedman test, between the products in terms of texture, flavor and overall acceptability. However, the colour of the product developed was significantly more acceptable than the commercial product ($P < 0.05$).

As the regular polypropylene package used in the market was proven to be unstable at temperatures above 105^oC, a special triple layer (aluminum layer between two polypropylene layers) package was found to be successful as a suitable retort pouch.