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17. DIETARY FIBERS IN EMULSIFIED MEAT PRODUCTS

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Meat is one of the most nutritious foods widely consumed throughout the world. Meat is processed in multiple ways before consumption. For instance, the processing may include simple roasting of the meat, but there are numerous meat products that

involve complex processing operations to develop the final product. The origin of any meat product is associated with its unique quality parameters. Each product has its unique characteristics in terms of texture, color, taste, and aroma. Any change in these characteristics may fail the product in the market. The preferences may vary from person to person and place to place. Generally, the meat and meat products possessing appropriate tenderness, juiciness, and aroma are considered of high quality.

Among the various quality parameters, tenderness is considered one of the major quality parameters which depend on various factors like species, age, feed, location of meat portions, marbling, connective tissue content, and slaughtering methods of the animal. Tenderness is evaluated using shear force, water content, fat content, microbial spoilage, and pH.

Despite being highly nutritious, meat is deficient in dietary fiber and contains a high amount of cholesterol [1]. Comminuted meat products are the cooked or raw meat products like frankfurters, bologna-sausages, salami, patties, nuggets, meatballs, fermented sausages, etc., which have been prepared by cut, shredded, ground, and minced meat. Such products contain meat and non-meat ingredients like binders and spices.

Dietary fibers, which are being incorporated in different comminuted meat products for a long time, have also been related to minimizing the carcinogenic effect of meat. Dietary fibers are believed to reduce the residence time of fecal matter in the colon thus can reduce the time for a reaction to propagate. Dietary fibers also bind the minerals thus reducing the activity of heme in the colon. Further, dietary fiber sources like fruit pomace, peel, vegetable, cereal by-products among others contain bioactive compounds like polyphenols which may help to prevent fat oxidation of the meat products [2]. Dietary fibers not only make meat safe, but their functional properties help to improve various quality parameters of meat products like cooking yield, juiciness, emulsion stability, and shrinkage. These dietary fibers may be the pure components like pectin, gum, glucomannan, carrageenan, alginate, inulin, resistant

starch, fructooligosaccharides, polydextrose, carboxymethyl cellulose, hemicellulose, and lignin or in composite forms like bran, pomace, peel, and vegetable by-products.

The incorporation of dietary fiber in the meat products results in a change of texture which may be desirable or undesirable. Some fibers are believed to increase the hardness of meat products while others may result in increased softness. The composite nature of dietary fiber generally added to meat products in the form of peel, pulp and bran is a reason for contradicting results on textural changes in meat products. In this review, we have summarized and analyzed the existing researches related to the texture of meat products incorporated with dietary fiber.

In comminuted meat products, the meat fibers are reduced in size thereby giving a tender texture. There are two ways to incorporate dietary fiber in meat products viz, formulation of a new product, and enrichment of existing products with minimum changes in their quality attributes. The most powerful tool used for texture analysis is the sensory texture profile analysis.

Literature

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