



LOW FAT MEAT PRODUCTS IN CONSUMER DEMAND: A REVIEW

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ABSTRACT

Meat is an important nutrient for human health and development. Meat and its products are an excellent source of essential amino acids and some micronutrients and thus are an important component of a healthy human diet. The significance of meat and meat products in human nutrition is well documented and it is an acknowledged fact that, as an essential part of a mixed diet, these make a valuable contribution to the dietary requirements in developing countries. Meat and meat products are being consumed all over the world including India and the proportion of meat eating consumers has increased considerably during past few years. Food of animal origin including meat is required to maintain the health of a human body. Their principal components,

besides water, are proteins and fats, with a substantial contribution of vitamins and minerals.

People have become more conscious about reduced fat in the diet, balanced protein sources and inclusion of recommended levels of dietary fiber sources in the daily diet. Thus most of the consumers demand meat products of good quality with low fat to maintain a healthy and balanced diet for several practical reasons.

KEYWORDS: Consumer health, Fat replacers, Low fat, Meat products.

INTRODUCTION

Meat and meat products, as foods, are dense in nutrients, where the major sources of calories are fats and proteins. As a meat component, fat contributes key sensory and physiological benefits to these products. Usually meat has a high content of saturated fatty acids and low content of poly-unsaturated fatty acids. The former group has been implicated in the risk of heart disease, while the latter group has a beneficial effect on the blood cholesterol content.^[1] Consumption of a diet rich in fat has been identified as a risk factor for excess energy intake, positive energy balance and the development of obesity.^[2] The role of fat as one of the main causes of cardiovascular disease has been well documented.^[3] Fat, trans-fatty acids (FAs), cholesterol and saturated FAs of meat products have also been associated with cancer (especially colon, prostate and breast) in developing countries.^[4] To achieve a more healthful dietary pattern, current dietary guidelines recommend modifying the type and amount of fat consumed.^[5] The American Dietary Guidelines recommend that the total fat intake should be limited to no more than 30 % of calories and saturated fat to no more than 10 %.

There is a wide understanding among consumers of the need to reduce their intake of fats of animal origin. This arises from the medical advice urging consumers to reduce their intake of fat, particularly saturated fat, in order to avoid obesity and lower the risk of coronary heart disease. In the context of this scenario meat products especially traditional have a relatively high fat content. The meat industry must change the quality and image of meat products by producing low fat versions. Weight conscious consumers avoid traditional meat products owing to their high fat content.

Alteration in nutritional composition of meat during fat replacement

As the fat content of meat products makes a large contribution to their organoleptic properties and hence their appeal, these functions must be accounted for when lowering the fat in a meat product. Although consumers want meat products with minimal to no fat or calories, they also want the product to taste good. Merely reducing the fat content in meat products leads to a firmer, rubbery, less juicy product with dark color and more cost.^[6] Other technological

problems like reduction in particle binding, soft and mushy interiors and shortened shelf life are also associated with reduction in fat levels. The focus has been directed to the replacement of fat by reformulating meat products with selected ingredients that provide some fat-like attributes.^[7] These fat replacers can be lipid, protein or carbohydrate-based and can be used alone or in unique combinations. Fat replacers are generally categorized into two groups: fat substitutes and fat mimetics. Main aim of these fat replacers is compensation of fat functionality, water control and development of the desired bulk. They also furnish a desired cohesiveness, viscosity, dryness, juiciness and certain moisture of the end-product that mimic fat.

Ingredients in use

Choice of ingredients is critical to developing a juicy, flavourful, low fat product that is inexpensive to produce. The key ingredient in a low fat meat formulation is the fat replacer or combination of fat replacers chosen. Alginate, carrageenans, pectin etc., are some of the examples of hydrocolloids that have been studied and used in low-fat meat product formulations. Alginate is a polyuronic saccharide, isolated from the cell walls of a number of brown seaweed species (*Phaeophyceae*). The irreversible gel property makes it useful in the low fat meat products. Carrageenan, a high molecular weight polysaccharide produced by red seaweeds (*Rhodophyceae*) is recommended for use in the formulation of low-fat meat products because it forms an elastic and clear gel with calcium, displays a stability in regard of freeze-thawing, increases water-holding ability and cold solubility. Carrageenan has virtually no calories. It can be used to reduce the fat content in formulated foods such as processed meats. Another source of fiber, oats provides textural enhancement. Both oat bran and oat fiber increases moisture retention and the bran is known to enhance mouth feel. It is well recognized that healthful effects of cereal grain as oat products are associated with prevention of hypercholesterolemia, one of the primary factors contributing to atherosclerosis and heart diseases.^[8] Dietary fibers from oat bran have been primarily reported to have hypocholesterolemic activities in both animal and human.^[9] β -D glucan, a soluble fiber from oats plays a potential role in these health improvements.^[10, 11]

CONCLUSION

Low fat meat products provide adequate nutrition and cater well to the need of health conscious consumers. Eating a healthful diet is the responsibility of the consumer. Fortunately, consumers are now becoming conscious of the diet related problems and are

anxious to reform their diet to derive health benefits. Meat technologists should accept this challenge and develop a variety of meat products which are not only health enhancing but palatable and safe as well. Thus, industry will be able to provide low fat meat foods reformulated for the specific purposes.

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