

New Trends in Meat Industry

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Abstract

Meat industry in India and other developing as well as in developed countries is changing in faster pace since last five years. It is due to modernization, globalization, enhancing paying capacity of consumers, economic upgradation, increasing women employs etc. The health constraints of the consumers are also aiding a new chapter in this sector. So now variety of products with its authentic validation is available in market. Now the processed meat sector is capable to provide the meat products in form of organic meat and meat products, functional meat products, convenient meat products, ethnic meat products, ready to eat meat products etc. The modern industry is also emphasizing on value addition and economic products with least wastage in the servings.

Keywords: Meat; Meat Products; Organic Meat; Functional Meat; Ready to Eat Meat Products.

Introduction

Indian meat industry is mainly based upon fresh meat production. It is produced and sold daily to cater the demand of consumers. Indian meat export is mostly dependant on the frozen meat. To fulfill the export demand about 27 integrated modern meat processing plants are approved for export of meat and registered as Export Oriented Units (EOU) under Agricultural and Processed Food Products Export Development Authority (APEDA) of Government of India. The meat production in the country grew at a healthy pace in last five years. The demand of poultry meat is still on top followed by beef/buffalo meat, chevon, pork, mutton etc. However, Indian meat export is solely dependent on buffalo meat and among Indian states, Uttar Pradesh (UP) is the largest meat producer followed by Andhra Pradesh, West Bengal, Maharashtra and Tamil Nadu. According to the data released by Agricultural and Processed Food Products Exports Development Authority (APEDA),

India exported 817,844 tons buffalo meat in 2014 and the rise was 14% than previous year.

Now with sustained income and economic growth, a fast growing urban population, burgeoning middle income class, changing lifestyles, improvement in transportation and storage facilities and rise of supermarkets especially in cities and towns are fuelling rapid increase in consumption of animal food products in various forms and kinds. The concept of health conscious consumers further added the variety and quality in this sector. To understand the trend of meat sector with respect to consumer demand whole discussion may be summarized under the following headings:

Organic meat food products

It is a production system in which producer must comply with organic standards set by national governments and international organizations. For production of livestock products, animals must be

reared with regular access to pasture and without the routine use of antibiotics or growth hormones. In most countries, organic produce may not be genetically modified but nanotechnology may be a part of organic produce. So it has been suggested that the application of nanotechnology to food and agriculture needs to be excluded from certified organic food. Initially the organic produce and organic farms were relatively small family-run operations. The boon in organic produce came in early 1990s and it grew with the rate of around 20% a year in both developed and developing nations. Organic food categories experienced the greatest growth during last 5 years mainly due to the health problems that the people are facing due to consumption of conventional foods which contains harmful chemicals which have detrimental effect on the health of the people. Most of the top retailers in the country offer organic products in their stores, and many foodservice establishments have taken notice, offering organic foods and ingredients more often on the menu (USDA, 2001). As of April 2008, organic food accounts for 1–2% of food sales worldwide. To label the product as “certified organic” it must contain only organic ingredients. If non-organic ingredients are present, at least a certain percentage of the food’s total plant and animal ingredients must be organic (95% in the United States, Canada, and Australia) and any non-organically produced ingredients are subject to various agricultural requirements. Foods claiming to be organic must be free of artificial food additives, and are often processed with fewer artificial methods, materials and conditions, such as chemical ripening, food irradiation, and genetically modified ingredients (Watson and Redman, 1999; Givens, 1999). Pesticides are allowed so long as they are not synthetic. Poultry has further difficulties with regard to processing. It must be cooled, usually in water. That water must be uncontaminated from non-organic birds. Basically organic standards regulate an animal from the state of its mother prior to birth, through feeding and housing practices, right to the abattoir and packaging. For a meat to be qualified as organic it should have following characteristics:

- ▲ *Animal produce must be free from antibiotics, added hormones, GMO feed and other drugs.* Animals/ birds are also not allowed to eat genetically modified foods. Further, animal/poultry products certified as organic cannot have their genes modified.
- ▲ *Animals are not forced to be cannibals* and there should be absolute ban on the feeding of mammalian and poultry slaughter by-products to organic mammals and poultry.

- ▲ *Food animals and poultry must be reared under free-range and graze* and house of animals/ poultry should receive a certain amount of direct sunlight. The floor of the house should be raised, not caged and care of animals during rearing should be more humane.
- ▲ Synthetic pesticides and fertilizers are not allowed to use on food or land that is intended to be used as poultry or animal feed. Animals and poultry should be given organic feed grown without chemical fertilizers, herbicides and pesticides on land cleansed of these products for at least three years.
- ▲ *To produce the organic meat, food animals’ must be slaughtered in slaughterhouses which are certified organic.* All the provisions mentioned in the standards for organic meat food production must be followed to protect organic integrity, and then it can be certified.

Functional or healthy meat food products

Functional or healthy meat food products are being most popular now a day and having larger footprint than organic products. It is so because consumers are more health conscious and functional products can be developed in lesser efforts and are widely available in present day super markets. Functional foods have specific health benefits besides satisfying nutritional requirements (Alzamora *et al.*, 2005; Niva, 2007). The active ingredients in livestock products are now exploited to encompass diabetes and obesity, kids’ health, food safety, women’s health, allergies and immunity as well as the fringe issues of “well-being” and “energy” (Jimenez-Colmenero *et al.*, 2001; Mendoza *et al.*, 2001; Scollan, 2007). Now modern processes for food and food ingredients manufacturing based on membrane technology, super-critical fluid technology, and some applications of biotechnology are being used to develop the functional foods and may call as “all-natural” enriched foods, probiotics and prebiotics. The functional products mostly prevalent in meat food sector includes low fat products (max. 3% fat), products enriched with fibres (with more than 3% Inulin), meat products combined with dairy products like yoghurt or whey powder, allergen-free products (for allergic people), salt reduced products (for elderly and cardiac people) 12 g NaCl + 5 g KCl per kg meat etc. The summary of such products may be presented as:

- ▲ *Low fat meat products* are very popular now a day due to problems of obesity and atherosclerosis, coronary heart diseases and other heart troubles. Though it is not easy to develop such products because fat is an important ingredient to impart

flavor, juiciness and other sensory attributes in comminuted meat products. To substitute the fat in meat products, fat replacers like inulin, oatrum, olestra, carrageenan, carboxymethyl cellulose, alginates etc. are widely used in desired quantity.

- ▲ *The use of antioxidant in meat products* is another way to develop the functional meat products. The anti-oxidants may be natural or synthetic in origin and once used in meat products prevents lipid oxidation thus prevent oxidative deterioration and off flavour developments in the product during storage. The examples of antioxidants used in meat products are rosemary extract, ground mustard seeds, ascorbic acid citric acid nitrite, vitamin E and butylated hydroxyanisole.
- ▲ *Probiotic and prebiotic meat products are also in demand, in which* live microorganisms of mostly Lactobacillus and Bifidobacterium genera are administered in adequate amounts, confer a beneficial health effect on the host. The use of such probiotic organisms claimed that they prevent an array of ailments like indigestion and diarrhea to irritable bowel syndrome and chronic inflammation – the root cause of diabetes, heart disease and cancer. Prebiotics are foods that the probiotics consume, mostly sugars of some sort. By eating prebiotics it can be ensured that the beneficial bacteria continue to grow and thrive in digestive system. Now-a-days sausages containing probiotic strains are quite popular in some segments of the consumers.
- ▲ To enhance digestion or to avoid constipation and other gastrointestinal troubles particularly in aged person's fiber incorporated meat products are very popular. Fibre sources for meat products include soy fibers, inulin, vegetable and grains etc.

The technologies are also available now to develop the meat products with bioactive components like carnosine, antihypertensive peptides, anserine, l-carnitine, conjugated linoleic acid, omega-3 fatty acids. These components have various health benefits.

Clean and hygienic Label Products

The meat and meat products are now not only serve the hunger but also play a role of daily diet. The thinking of consumers is also changing day by day and now they are accepting the refrigerated and frozen meat. The development of supermarket culture in both developed and developing countries

promulgated the change in human food habits. However, the quality and safety both are important to attract the consumers.

To cater the demand of consumers with clean and hygienic food products government regulations on food safety and inspection have led to adoption of more carefully controlled sanitation and quality control procedures.

Economic products or value added products

To get the quality meat product and adoption of sanitary and hygienic measures led to increase in the cost of manufacturing products and indirectly resulted in need for greater efficacy. In order to decrease cost of formulations some non-meat ingredients/additives/low cost meat are added in comminuted meat products (Singh, 2004; Sharma, 2006). However, it may be mandatory for additives to comply with the hygienic and nutritional standards of a country or world agencies. For value addition various types of flours, starches and vegetable are now used to reduce the cost of product. The other sources includes non fat dried milk (NFDM) in sausages to increases water and fat binding and it is cheaper than high quality meat proteins, mechanically deboned meat which costs less is added up to 20% to sausages and other comminuted meat products, soy protein is also added to ground meat products which also acts as binder.

Servings or portion control

The convenient packages with a exact bulk density of the product requires for consumption of a person at a time is known as serving or portion control. The single serving pouches of foods provide convenience, ready to eat, aesthetic appeal and longer shelf life to the products. It also prevents multi-handling and exposure of external environment to the product thus enhances shelf life and prevents product quality for longer duration. The wastage of products can be easily prevented and product can carry anywhere without any difficulty. It should also provide the exact amount of calories to a person as per the average daily requirement. So the exact nutritional values reach to the consumers and mal-nutrition or obesity can be prevented easily.

Convenience products or tertiary processed food

To provide convenience, variety and ease in handling to the consumers now variety of products are available. It is utmost important segment of the modern meat industry because of large number of

women employ, highly movable population, children demand, and lack of time available for preparation of meals. As meat is such product requires longer preparation time and processing steps requires due attention every time leads demand for convenience items which in turn led to expansion of processed meat industry. The trend towards complete processing for consumer convenience and development of new products or conversion of product to the ready servings are having great scope. So more complete heat-and-serve and ready-to-eat products are in the offing which are room temperature, shelf-stable products; or as refrigerated or frozen products that require minimal preparation, typically just heating. Some of the popular convenience products available are hamburger, meat patties, meat nuggets, chicken samosa, chicken burger, fresh or frozen Pizza, ready meals for the microwave, ready to cook chicken parts (spiced wings or drumsticks), marinated meat products (beef or chicken Burger) etc.

Ethnic Products

There is a great demand of the ethnic products in different parts of the world. They are actually localized at a part and are not very popular in other parts of the country or world. They are gaining popularity day by day due to especial quality and nutritional values. It is also due to globalization and social changes accepted by the society. The typical examples of some ethnic foods are Mediterranean Lasagne Pizza, Chinese, Thai, Indian food, Mexican food like Fajita, Taco, Chipotle, African food such as Harissa, Berbere, Zulu etc.

Target oriented meat products

Present world is seeking the meat products with convenience, variety, safety and quality. Over and above the target oriented products are also in demand like high protein food for children, low fat food for aged and health food for all. So different foods are offering for different age groups of peoples as per their needs and requirements.

The social changes are now reality and food habits are also changing very drastically. It is due to globalization and exposure of one part of people with other parts of the world and/or country. So the meat produced mainly in fresh form is now converting into a full flesh processed meat industry. The stigma of meat is no more prevalent as it was previously existed. Now the variety, quality, authenticity and ready to eat packages are the reality.

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