

Value added meat products and development of processed meat sector

N. Kondaiah

Division of Livestock Products Technology
Indian Veterinary Research Institute, Izatnagar – 243122, U. P.

Abstract

A number of processed product units are involved in manufacturing value added products from buffaloes, sheep, goat and aged animals meat. The purpose of meat processing, scope of value added products, relevant approaches, some value added products and economics of these products have been discussed in this paper.

Keywords: Meat, Value added products, Sausages, Patties, Nuggets, *Kababs*, Meat balls, Meat *pakoda*, Vegetables.

IPC code; Int. cl.⁷ — A23J3/00, A23L1/31, A23L1/318.

Introduction

Sustained livestock production to provide livelihood and ensure food and nutrition security to a large population is dependent on efficient utilization of livestock products. Processing meat to value added products contribute to sustained demand for meat and efficient marketing of meat to earn reasonable returns from meat animals by the farmers. At present about 2 percent of total meat is processed into products for trade while in developed countries it is above 60



Pork products

percent. There are about 170 processed meat units, producing a number of meat products mostly as small scale units and licensed under Meat Food Products Order, 1973.

Scope of value added meat products

India produces about 5.7 million tonnes of meat from different meat animals. A very large proportion of these animals particularly buffaloes, sheep and goat are spent (aged) animals whose meat is generally tough and less palatable but more suitable for processing to products both on economic and quality considerations. With the rapid growth in poultry industry availability of layer and broiler hens as culls has also increased which could be beneficially utilized for products processing to the benefit of producer and consumer. Thus organized development of processed meat sector is

important to realize full benefits from meat animal and contribute for sustained meat production. Also, it is necessary to produce quality value added meat products to meet the requirements in the post WTO period for effectively facing global competition both to check large scale imports to the detriment of domestic sector and to promote exports.

Purpose of meat processing

- To produce value added products and provide variety of meat products
- To increase demand and marketability and meet life style requirements.
- To utilize different carcasses beneficially and to utilize different by-products.
- To combine and compliment different meats with advantage.
- To incorporate non-meat ingredients for quality and economy.
- To preserve, transport and distribute to larger populations.
- To facilitate export of meat products and compete with imports.
- To promote entrepreneur ventures and employment.

The growth of processed meat sector assures the farmers a regular off

take of their produce at reasonable prices and provides a variety to the consumer. This is more so in poultry sector, when the market prices fall due to excess supply. Poultry could be processed and stored to be released into market at an appropriate time and farmer's returns could be protected to sustain his operations.

Relevant approaches for value added meat products

Value added meat products are further processed meat products with increasing convenience to consumer through decreasing preparation time, minimizing preparation steps, allowing use of specific parts, taking risks out of kitchen and increasing value of product. With the advent of further processing and availability of new products meat consumption, particularly poultry

consumption has increased many fold all over the world.

Value added products could be broadly classified based on processing, based on variety/convenience and based on function. Processes such as portioning, deboning, size reduction, seasoning (addition of spices and condiments), tenderization, tumbling, retorting, emulsion preparation, battering, breading and variety of cooking methods are utilized to produce a variety of value added products.

Appropriate quality raw materials, correct formulation, optimum processing, right packaging, storage stability, flavour and colour changes, nutritional value, labeling requirements, product specifications and regulations, etc. are important factors in the success of processed meat products.

Large versus small scale units

Large scale processing of meat products with automatic processing equipment would find relevance to market products in metropolitan cities and for exports. However, a relevant approach for large scale development of processed meat sector in the country would be to

promote a number of small scale units across the country to meet the demand for products from a large number of consumers of varying socio-economic status and ethnic preferences.

Though, automatic machines are being developed for a variety of products, meat processing to value added products is labour intensive and promoting small scale ventures with simple technology would find higher relevance in Indian situation with lower labour costs.

Some value added products

Emulsion based meat products

Development of emulsion based meat products facilitate better utilization of meat and byproducts from different spent animals including spent hens. Tough meat is minced in a mincer and emulsion is produced in bowl chopper adding meat, fat, salt, phosphate, spices, condiments, binders, ice flakes, etc. in correct proportion and sequence and chopping to a desired consistency. Emulsion quality contributes to product yield and palatability to a large extent. A large variety of palatable products such as sausages, patties, nuggets, kababs, meat balls, meat *pakoda*, etc. could be produced from the same emulsion. The emulsion could also be stored and fresh products could be produced at a desired time. Emulsion technology is more relevant in Indian situation with availability of tough meat and desire to incorporate a number of spices, condiments and non-meat extenders such as eggs, milk solids, potato, soya pulses, etc.

Meat nuggets

A simple technology has been developed to produce meat nuggets from different meats and their combination by forming a block using a mould and cutting



Convenience chicken products



Chicken patties



Chicken balls curry



the cooked meat block into nuggets of different sizes and shapes. This technology is of very low cost as compared to modern technology using forming machines and emulsion of any desired consistency could be used. Fried, smoked and pickled type variety meat nuggets could be produced. Economic formulations with a cost reduction of 30% have been developed to produce economy type nuggets with higher nutritive value.

Combination of meats

In order to compliment and supplement qualities and availability of different meats and their byproducts combination of meats is desirable to produce value added products. Blends of mutton and chicken or chicken byproducts (skin, gizzard and heart) or chicken fat resulted in highly acceptable products such as nuggets, patties and sausages. Eggs possess several functional properties, which may compliment meat proteins in meat products. Highly acceptable meat products of relatively lower cost were produced incorporating eggs up to 30% in the formulation.

Restructured products

The purpose of producing restructured products is to effectively market less valuable carcasses (from spent or aged animals and of poor conformation) and carcass components. The basic processes include chunking, flaking, tearing, grinding, chopping, mixing, tumbling, emulsification, forming, freezing, tempering, pressing,

slicing, cooking, etc. Tumbling, massaging and blade tenderization facilitate production of high quality restructured products. The products include steaks, cutlets, chops, roasts, rolls and hams.

Enrobed products

Enrobing/ coating of meat products with edible materials in the form of batter using flours, whole egg liquid and other additives is a method of value addition, which enhances the acceptability of meat products. Enrobing imparts the product a crispy texture and increases the pleasure of eating with more desirable colour. Products will be juicier as natural juices are retained.

Incorporation of vegetables in meat products

Incorporation of seasonal vegetables such as cabbage, cauliflower, carrot, bottle guard, pumpkin, etc. in meat products would be advantageous to reduce cost of meat products, to provide fiber and flavonoids in meat products, to facilitate consumption of vegetables and to provide balanced and healthful diet meat products. Meat products added with vegetables may find wide popularity among Indian consumers.

Economics of value added products

Availability of adequate raw materials at reasonable cost and distribution and marketing at minimum costs contribute favourably to the economics. Sale price depends on the economic status of consumers, the product aimed at. Low cost facilitate wide range of consumers. All efforts have to be made to keep production cost at minimum with selection of appropriate formulation, processing conditions and infrastructure facilities. Addition of polyphosphates was found to result in immense benefits such as higher product yield, better palatability and keeping quality in Indian situation of meat handling. A project appraisal on different aspects of the value added products is necessary before going for starting a meat products venture.

There is large scope and need for development of meat product sector to produce value added meat products to benefit meat animal production and to fulfill consumer demand for variety meat products. In addition to making available hygienic meat for processing by entrepreneurs as per the requirement of Meat Food Products Order (MFPO), 1973, Ministry of Food Processing Industries need to promote model meat product ventures in the country with suitable financial and technical assistance. Presently functioning meat product units need to be assisted to upgrade their facilities and production practices to give a fillip to the development of value added meat products sector. □



Diet nuggets (Chicken)

Smoked chicken sausages