

Laboratory of technology of canning manufacture



From the beginning of origin of canning manufacture when canned meat was used basically for army supply, their assortment has been limited enough, and manufacturing techniques – with prevalence of manual skills. With the advent of meat-packing plants there was a necessity of transition to scientifically well-founded technology of meat and meat products. In March, 1930 the Scientific research institute of a meat economy nowadays VNIIMP of V.M.Gorbatov has been created. In the first year of existence of institute 2 laboratories have been organized: laboratory of technology of meat (was engaged including canned food) and laboratory of chemistry and meat microbiology.

In 1940 the laboratory of technology of meat has been reorganized and on its base six sectors have been created:

1. Technological in which structure there were groups: raw, primary processing of cattle, processing of an offal, guts and skins, manufacture of fats, processing of blood, manufacture of sausage products, semifinished products (the head of the prof. V.J.Volfrets);
2. Canning (the head engineer. S.V.Balabashkin);
3. Glue-gelatinous (the head engineer. Z.V.Hohlova);
4. Power (the head (engineer. A.G.Divakov);
5. The process equipment (the head engineer. V.S.Mirsky);
6. Economic (the head economist J.L.Shalyto).

The history of scientific researches in the field of conservation of meat products begins in 1934-1936 when employees of institute V.T.Kirillov, E.V.Kiselev, V.I.Chistjakov have proved modes of sterilization of canned food at temperature 120°C. VNIIMP performed a number of works on improvement of modes of sterilization of canned meat (V.G.Kirillov, E.V.Kiselyov).

The big contribution to researches of the major problems connected with activity of laboratory, such experts, as N.V.Shirokova, D.S.Mindlina, M.S.Milovidova, S.N.Kuskova and M.G.Ploticher (have brought Studying of physical and chemical changes of meat in the course of sterilization and working out of optimum process of development of canned meat in glass container 1939-1940).

Questions of studying of physical and chemical changes of meat in the course of sterilization and working out of optimum process of development of canned meat in glass container are devoted N.V.Shirokova, D.S.Mindlina, M.S.Milovidova's (1939) works, S.N.Kusova and M.G.Ploticher (1940).

In 1945-1961 production technologies ветчин are developed, sausages, sausages, production technologies of tinned languages and pastes are improved and modes of sterilization of canned meat are specified.

In 1948-1949 as a result of studying of process of penetration of heat in the center banks have been recommended three-stage modes of sterilization.

In 1948-1949 in laboratory questions of penetration of heat in the center banks were studied at sterilization of the basic types of canned food: lumpy, paste and others.

In 1950 the production technology of canned meat in large container (3 kg) is developed, the optimum sizes of pieces of meat and cooking modes, and also net weight and a fat and meat parity are established at packing in (S.N.Kusov) banks.

In 1951 the production technology of a tinned ham providing temperature processing to 117°C and double sterilization at 100°C is developed.

In 1950-1953 the standard documentation on technology of minced meat canned food is developed.

In 1954-1956 the production technology based on mechanical packaging of meat in banks is developed. It is working out became a basis of mechanization and the line production organization.

In 1961-1962 the new technology of pastes on the basis of mechanization and the line production organization is developed.

In 1962-1963 the new technology of canned food «Concentrated meat broth» is developed.

In 1963-1968 complex researches of possibility of use of various kinds of materials for development and processing of tin container were conducted: new varnishes and enamels for an internal covering of a tin of an electrolytic tinning; tests of a tin of a hot tinning II a class of a covering and a tin of an electric tinning; researches on iron transition in a product; studied use possibility in canning manufacture cans from the varnished white and aluminum tin.

In 1963-1964 influence of a kind of a polymeric material and a packing method on sensory, physical and chemical, bacteriological indicators and periods of storage of meat, semifinished products, sausage products (I.N.Shishkina, L.L.Zbanduto, M.M.Iljashenko) has been investigated.

In 1964 works are spent to laboratories together with the Kazakh branch on studying of effective protection of a tin of an electrolytic tinning by various varnishes, and also applications of aluminum container.

In 1964-1965 the new kind of canned food «Concentrated meat broth» (with the maintenance of 20-24 % of the dry rest), prepared with use of the beef bones – goals (S.E.Vorontsov, A.V.Dolgova, E.M.Kuzmina) is developed.

In 1966-1967 the institute (R.K.Smirnova, I.M.Kotik, N.B.Pozdnjanskaja) together with НИП container (V.I.Evseev, L.N.Ardaeva) had been developed a design of basins from a polymeric material for the purpose of replacement of metal basins by manufacture as they were considered unhygienic while in service, were exposed to deformations, created noise, cooled

hands of workers and demanded annual repair. Besides transportation studio in cardboard boxes conducts to deterioration of a sanitary condition, a product trade dress, to additional expenses.

In 1966 together with Semipalatinsk meat-packing industrial complex works on development of sterilizers of continuous action and working out of modes of sterilization of canned food were spent.

In 1990 (E.F.Oreshkin, G.S.Chubarova, S.V.Karpova) researches under the production technology meat-plant canned food for pets and (Oreshkin E.F., S.N.Hvylja, S.V.Rudenko) were conducted

The general directions of scientific and industrial activity

Perfection of technology of canning manufacture for today is connected with decrease in thermal loadings on production at sterilization and working out of power saving up technologies, transition to output under national standards, expansion of a source of raw materials and assortment of developed canned food, and also nomenclatures of a used retail container.

According to «the Perspective program of development of national standardization in the field of Agriculture for 2008-2010» laboratory of technology of canning manufacture spent the big work on creation of national standards of the Russian Federation on canned food meat.

There are begun researches on influence of modes of sterilization and a retail container kind on aroma of canned meat for the purpose of identification and revealing of the substances giving to a product unpleasant «aroma of sterilization».

Laws of change of the basic components of the homogeneous and heterogeneous pasteurized canned food defining their food and biological value are studied, by manufacture and storage.

With meat researches of the integrated thermal and biochemical processes of manufacture of the second lunch dishes are conducted in a multisection polymeric retail container.

During the last years researches laws of change of one of defining barrier factors - sizes of oxidation-reduction potential of canned food depending on a kind of meat and vegetative raw materials, modes of sterilization and duration of storage of canned food are received.

Correlation dependences of indicators of protein's destruction, fats and carbohydrates of production from sizes of the reached sterilizing effect and duration of storage of production are established, allowing to open the mechanism of their chemical transformations.

Modes of sterilization meat and meat-plant canned food in soft polymeric container are scientifically proved.

21 technical documentation set on new kinds of tinned foodstuff which are introduced on 16 enterprises of canning branch of Russia, Ukraine, Belarus and Mongolia is developed.

For years of successful work we have established close business mutual relations with leading canneries of the country:

- LLC «Borisoglebsky meat-packing industrial complex» - Borisoglebsk;
- Joint-Stock Company «Mikojanovsky meat-packing plant» - Moscow;
- Agrarian and industrial complex LLC "Mavr" - Abakan;
- LLC "Miasomolprod" - Narofominsk;
- Joint-Stock Company «Orsk meat-packing plant» - Orsk;
- LLC "KonservProdukt" - St.-Petersburg;
- Joint-Stock Company «Joshkar-Olinsky meat-packing plant» - Joshka-Ola;
- LLC "Baltprommiaso" - Kaliningrad;
- LLC "DEIMA" - Polessk;
- Joint-Stock Company «Hame Foods» - the Vladimir region, Suzdal;
- LLC «Kurgan meat-packing plant» - the Barrow, etc.

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