

Gráf. J: (Minister of Agriculture and Regional Development): ANNIVERSARY GREETINGS – LAUDATION. Pp. 1-2.

Farkas. J: Selected achievements of the Central Food Research Institute, Budapest, from its establishment until the turn of the 21st century. Pp. 3-20. j.farkas@cfri.hu
The treatise provides selected examples on the activities and main results of the research and development work during the first forty years of history of the Central Food Research Institute, Budapest.

Bánáti. D: Food safety in focus the last ten years – the first decade of the 21st century in the life of the Central Food Research Institute. Pp. 21-60. d.banati@cfri.hu
The review provides selected examples on the activities and main results of the research and development work after the re-organization of the Central Food Research Institute (Budapest) at the turn of the 21st century.

Gelencsér. É: Novel research strategy for safe use of legume proteins in human nutrition. Pp. 61-70. e.gelencser@cfri.hu

Earlier studies on protein antinutrients and allergens naturally present in legume seeds have shown that these compounds are responsible for the impaired performance of experimental animals when exposed for a long term. These reactions were characterised by lowered nutritional performance, reduced growth, poor digestion and absorption, changes in gut motility, structural damage in small intestine and diarrhoea. A lot of efforts were made for gathering data on heat stability and resistance to chemical or enzyme treatments of these compounds to reduce or eliminate these harmful effects. A novel research approach has described that these compounds have a special regulatory role in the gut metabolism and modulate hormone and immune responses which resulted in a novel concept of “non-nutritive biologically active compound”. These studies revealed that the chemical structure of these compounds was responsible for the induction of such physiological reactions as increased endogen N-loss, change in the plasma amino acid concentration or plasma lipid composition with reduction of total cholesterol level or developing of harmful immune responses to luminal antigens resistant to the gut digestion. Recent studies were therefore related to the description of their interaction with the gut metabolism and understanding of the modulation of gut immune responses to luminal antigens. This review was inspired to summarise the research efforts on the above field performed by the Nutritional and Biological Units of the Central Food Research Institute.

Keywords: legumes, trypsin inhibitors, lectins, allergens, gut resistance, immune responses to luminal antigens

Halász. A and Zalán. Zs: Biochemical principles of the use of yeast biomass and lab starter cultures in food production. Pp. 71-85. a.halasz@cfri.hu 1. Yeast biomass; 2. Lactic acid bacteria – an overview of the fermentation research in the CFRI

Daood. H,G: Analytical and technological aspects on bioactive compound in spice red

pepper. Pp. 87-97. h.daood@cfri.hu

During the last decades comprehensive data in the field of chemistry, biology and technology of spice red pepper (paprika) have rapidly accumulated. In food science and technology the research work focused on, among others, developing accurate, simple, rapid, reliable, and of high sensitivity analytical methods to determine paprika pigments and antioxidants. The research concentrated mainly on the development and optimisation of liquid chromatographic methods to determine the carotenoids, tocopherols (vitamin E) and ascorbic acid (vitamin C). In the area of plant biology/physiology characterisation of ripening of traditional and new cultivars and hybrids of spice red pepper was the main objective of research work carried out by research groups in different countries. In the field of paprika processing and technology special interest has been given to the effect of different drying technologies on the quality components of paprika and their stability during drying, milling and storage. The aim of many research programs was to produce paprika with high colouring capacity, antioxidant content and storage stability. The objective of this article is to review the research works done on spice red pepper in the Central Food Research Institute, Budapest.

Keywords: Pepper, paprika, carotenoids, tocopherols, vitamin C, antioxidants, ripening, drying, processing

Beczner. J and Bata-Vidács. I: Microbiology of plant foods and related aspects. Pp. 99-115. j.beczner@cfri.hu

Vegetables and fruits are staple food for the human mankind, and they are also considered as the symbol of healthy nutrition. They are consumed fresh and cooked, in salad mixes, freshly pressed, fermented, minimally processed form, stored under different conditions, etc. Since they are in close contact with the environment, natural or artificial, and have a natural microbiota on their surface being highly variable as a function of the surrounding, they are prone to get contaminated with human pathogens, too. More attention is paid to the food-borne outbreaks in the last 10 years related to the consumption of contaminated plant foods, and it is also in the focus of our activity.

Keywords: fruits, vegetables, food-borne diseases, contamination of soil, biofilm, microbial stress

Cserhalmi. Zs: Main trends and research results at the unit of technology. Pp. 117-125. Zs.Cserhalmi@cfri.hu

The continuous development of food production technologies is essential because of the uninterrupted growing food production; the transportation of these food products, which means longer and longer transport; and because of the increasing consumer demands concerning the applied technologies, which assure the safe and healthy nutrition. This modernisation trend today has already reached the development of gentle food processing technologies, which make possible the creation of food products preserving their original nutritional values and having a higher added value. Concerning the application of any new technology, it is a more and more important demand that the environmental impact should be lower compared to the earlier technologies. This lower impact can be manifested in less energy and water use, in less wastes production or in more rational energy use.

Keywords: radio frequency heating, pulsed electric field

Szabó. E: From the food economy research to the consumer sciences. Pp. 127-140.
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Socio-economic analyses appeared among the research subjects of the Central Food Research Institute for the first time in 1982 with reference to the institutional reorganization. In addition to the earlier issues supported by economic calculations, activities of the unit involved in food economics had been more and more featured by turning to topics serving for quality products manufacture (implementation of quality management systems, labelling, the population's food consumption etc.) as well as by joining the research work of the associated departments making their activities more complex. Also the socio-economic regime change in 1990 made substantial impact on the activities performed at the unit. For the time being, consumer scientific studies provide main direction of the research with special regard to consumer perception of food safety risks and food safety risk communication. Possibilities for dynamic development in the pioneered way seem to be sure with reflection to healthy nutrition as well as environmental and ethical issues.

Keywords: economic research, food economics, quality, consumer sciences, food safety, risk communication, risk perception

Pándi. F: Nearly ten years in the r&d service for food industrial environment protection. Pp. 141-152. F.Pandi@cfri.hu

In our paper we pointed out that environment protection cannot be treated in an isolated way from running the economy and that environment protection is an integral part of the prevailing sector policies. In this context, some timely issues of food industrial environment protection and the related R&D activities were reviewed. Some elements of environment load by the Hungarian food industry are also analysed and it is scrutinized how the emerging requirements to be fulfilled can be supported by the Central Food Research Institute.

Keywords: food industry, environmentload, re-utilization, bioengineering processes