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ХІМІЧНІ, ФІЗИЧНІ ТА МАТЕМАТИЧНІ МЕТОДИ ДОСЛІДЖЕННЯ ПРОЦЕСІВ ТА АПАРАТІВ

конф-ції «Сучасні технології і обладнання харчових виробництв», 29-30 вересня. – Тернопіль, 2011. – С. 99-100.
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ANALYSIS THE FEATURES OF THE APPLYING OPTICAL TECHNOLOGIES IN THE DESIGN OF ACCESS NETWORKS

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The development of optical technologies in the 21st century has led to the need of reducing costs and improving the quality of existing and planning networks. The growing number of users imposes increasingly large demands on networks. Operators have to seek solutions through new technologies and experimental solutions. One such promising and Emerging Technologies is a PON (Passive Optical Network). The essence of PON technology is that reception transmitting module between the central node OLT (optical line terminal) and remote subscriber nodes ONT (optical network terminal) creates a completely passive optical network PON. In the intermediate nodes are placed passive optical splitters – compact devices that do not require energy consumption and maintenance. One OLT receiver module can transmit information of many consumer devices ONT. The number of ONT, OLT connected to each other, can be as large as your budget allows, power and maximum speed depends on reception transmitting equipment.

Passive optical network are shared among many subscribers environment because of the OLT operates TDM (Time Division Multiplexing) and by ONU – TDMA (Time Division Multiple Access – division multiple access time). This downward flow (we call them flow from ONU to OLT) is transmitted at a wavelength of 1490nm and rising (flow from ONU to OLT) – at a wavelength of 1310nm. This is done in order to leave place for CATV (analog TV), which also can be sent to the tree PON subscriber. Transmitters CATV broadcast at a wavelength of 1550nm or 1310nm, but GEPON equipment manufacturers took 1310nm wavelength for UpStream, to maximize reducing the cost of client devices (lasers emitting at a wavelength of 1310nm much cheaper lasers emitting at a wavelength of 1550 nm) [1].

After analyzing the trends of communications services, it should be noted, that the most relevant service "tomorrow" will – broadband access to the Internet. This service allows you to implement a large package of other services that characterizes most capacious marketing program Triple Play. It provide's a high level above the designating services and building advanced communications network, based on new technologies. All technology can provide a number of general trends – they are based on All–IP networks, closely integrated with QoS, support high speed (more than 10 Mbps per subscriber). This was achieved mainly through systems (algorithms, methods) redistribution. They can provide various kinds of the same quality as a dial–up systems without losing the main benefits of packet networks – high density download link [2].

The urgent task are analysis, research and development of methods of designing networks based on optical access lines. During the research were considered different types of optical technologies and topologies. Overall analysis of such technologies has helped to understand the principles of construction of access networks based on optical technology, choice principles topology to gather material for "universal" methods of improving the efficiency of designing access networks.

Scientific Supervisor – PhD Svetlana Sakharova

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COMPLEX APPROACH TO QUALITY IMPROVEMENT OF BAKERY PRODUCTS BY USING PHYTO-EXTRACTS

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The important task of food industry is the development of innovative solutions to problems as well as manufacturing the products with currently relevant physiological properties. Wholesome food products with protective and prophylactic properties fortified with vitamins, essential amino acids, mineral substances, and other biologically active compounds continue to gain popularity [1,2]. Additionally, baking industry encounters the product quality problems, especially in straight dough technologies and while processing low quality flour, that are solved by using chemical improvers. However, this fact causes unease among consumers and health professionals. In this regard, the growing interest towards aromatic and medicinal plants as the source of biologically active compounds capable of improving the product quality has been observed. Given their chemical composition, physiological properties, and availability, dogrose and hawthorn berries containing valuable vitamins, major and minor dietary elements, mono- and disaccharides, pectins, amino acids, etc. as well as peppermint and lemon balm leaves known for their antioxidant and antiseptic properties and appealing flavor has been chosen as promising raw materials. These ingredients have distinctive range of pharmacological properties, such as anti-inflammatory, anticarcinogenic, restorative, and protective [3,4].

Considering high reactivity of pectic and phenolic compounds, organic acids, etc., it is advisable to study the possibility of controlling the intensity and direction of colloidal and biochemical processes and the state of biopolymers during bread making in order to improve the quality of intermediate and finished products, despite the quality fluctuations of raw materials. The plant materials containing saccharides, amino acids, vitamins, and wide range of macro- and microelements, often absent or lacking in flour and other traditional ingredients, can be considered as promising components of nutrient mediums for yeast and lactic acid bacteria. Additionally, the presence of compounds with antioxidant and antiseptic properties and appealing flavor allows to consider the possibility of preventing oxidative and microbiological spoilage and decreasing the content of additives, preservatives, and flavoring agents [5].

The determination of rational methods and parameters of plant material preparation in order to form the necessary properties considering the requirements and conditions of baking industry is one of the most important tasks.

The easiest method of plant material preparation is grinding and its further usage in the form of powder, however, its structural and mechanical properties, especially the particle size, noticeably differ from the properties of flour, which leads to degradation of sensory qualities of finished products.

Extraction is an effective method of separating the complex of technologically valuable compounds and removing the undesirable fractions. Water was chosen as an extractant traditional for bread industry with the material to extractant ratio of 1:10 for dogrose and hawthorn berries, and 1:20 for peppermint and lemon balm leaves. The rational temperature and duration of extraction was determined experimentally, monitoring the content of total soluble

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