EXCRETION AND CHARACTERISTICS OF POLYPHENOLS OF MEDICINAL PLANTS

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The comparative modern methods of qualitative and quantitative analysis of bioflavonoids, and the content of rutin and quercetin in medicinal plant raw materials is analyzed.

Keywords: polyphenols, flavonoids, kvertsetin, rutin, chromatography, spectrophotometry.

Flavonoids are a large class of natural compounds. Due to the inherent wide spectrum of biological action and antioxidant activity interest in flavonoids is great. In modern science, great attention is paid to the search for optimal ways of using flavonoids in the interests of improving people's health, preventing and treating various pathologies caused or accompanied by the intensification of processes of free radical oxidation [1].

In that work, the analysis of the quantitative content of bioflavonoids (rutin and quercetin) in medicinal plant raw materials was made with the help of spectrophotometric and chromatographic-mass-spectrometric methods.

The literature data were analyzed and the materials containing the largest number of investigated flavonoids were selected. During the work, SSS (standard state sample) of rutin and SSS of quercetin were used. During the spectrophotometric method, the optical density was measured at 408-616 nm using a SF-2000 spectrophotometer, the results were recalculated into routine. When the chromatographic mass-spectrometric-method was carried out, the analysis of the extract samples was carried out using a liquid chromatograph Dionex UltiMate 3000. During the analysis chromatograms were recorded [2].

The comparative characteristics of the studied methods for the determination of flavonoids have shown that the spectrophotometric method for determining bioflavonoids points at an overestimated rutin content in comparison with the results of chromatography-mass-spectrometric analysis. On the basis of the obtained results, it can be concluded that spectrophotometry does not make it possible to carry out, along with quantitative, a qualitative analysis of bioflavonoids and to estimate the actual content of the flavonoid in the medicinal plant raw material, while the use of the chromatography-mass spectrometric method of analysis makes it possible to identify individual flavonoids regardless of the presence of extraneous and/or related compounds.

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THE IDENTIFICATION OF EXPRESSION'S LEVEL OF NUCLEAR ANTIGEN KI-67 IN PATIENTS WITH PANCREATIC CANCER

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During the molecular biological study of the expression's level of the nuclear antigen Ki-67 in patients with pancreatic cancer, a lack of expression was found in 34% of patients. High level of expression was detected in 11 (22%) patients; moderate level in 12 (24%) patients; low expression was noted in 9 (18%) patients.

Keywords: pancreatic cancer, expression, antigen, Ki-67.

According to the WHO 2012 pancreatic cancer is the 10th highest incidence and the 4th place in the 5-year survival rate in the world [1]. In Belarus died more than 700 people in 2010, and according to the 2012 – 809 [2]. Diagnosis of pancreatic cancer is difficult operation. The disease has no specific symptoms in the early stages. Patients seek treatment at III or IV stage when the tumor is large or metastatic.

For estimating the proliferative activity of tissue, the expression of the nuclear antigen Ki-67 is evaluated. This antigen is contained in the nucleus and its amount increases when the cell divides. Also, Ki-67 is a predictor of tumor disease and tumor response to chemotherapeutic treatment. This is determined in the following way: the lower the Ki-67 index, the worse the tumor reacts to chemotherapy treatment. And vice versa - the higher the Ki-67 index, the better the tumor will respond to chemotherapy [3, 4].

Material and methods. Clinical data and tumor tissue of 50 patients with pancreatic cancer at the age of $63,20437 \pm 1,67$ years served as a material for the study. They were on treatment at the Republican Scientific and Practical Center of Oncology and Medical Radiology, N.N. Alexandrov".

Determination of the expression's level of Ki-67 in patients with pancreatic cancer was performed by immunohistochemistry using DAKO reagents (Denmark) and visualization system (EnVision +).

As a result of the analysis of the expression's level of the proliferative antigen Ki-67, it was found that 36% (18 patients) had no expression of this protein or were detected in single cells (less than 1%), with prevalent ductal adenocarcinoma diagnosed in 33.33% of patients with IV stage of the tumor process. A positive reaction for Ki-67 was observed in 32 cases with prevalence of ductal adenocarcinoma and stage IV of the disease. Of these, 22% (11 patients) had high proliferative activity (>50% positively stained cells), a moderate level of expression was found in 12 (24%) patients, weak expression was found in 9 (18%).

Thus, as a result of the molecular-biological studies it was found that 64% of patients with pancreatic cancer showed expression of the proliferative antigen Ki-67, which may indicate tumor aggressiveness and unfavorable prognosis of the disease course.

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GENERATION AND ANALYSIS OF DECELLULARIZED LIVER SCAFFOLDS FOR REGENERATIVE MEDICINE

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Decellularization of the hepatic tissue for obtaining scaffolds and their subsequent recellularization by allogeneic cell cultures is a promising direction of tissue and organ bioengineering for a potential creation of a liver with full biocompatibility for transplantation. A careful multi-parameter evaluation of the functional and immunogenic properties of the various allogeneic cell cultures is important in recellularization.

Keywords: decellularization, recellularization, Kupffer cells, immunological properties.

Tissue engineering is a field of regenerative medicine aimed at recreating tissues that relies on 3 main pillars: cell cultures, scaffolds that provide structural support to the cells and bioactive molecules that direct their organization into tissues [2, 4, 5].