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**ЛЕКАРСТВЕННЫЕ РАСТЕНИЯ КАК АЛЬТЕРНАТИВНАЯ ТЕРАПИЯ  
ПРИ ЛЕЧЕНИИ ОНКОЛОГИЧЕСКИХ ЗАБОЛЕВАНИЙ**

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**MEDICINAL PLANTS AS ALTERNATIVE THERAPY  
IN CANCER MANAGEMENT**

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**Резюме.** В статье рассматривается проблема использования лекарственных растений при лечении рака, а также проблема разработки альтернативной фитотерапии в контексте современной медицины. Результаты опроса показали, что растительные средства для лечения рака еще не заслужили необходимого уровня доверия со стороны общества, но люди верят, что в будущем они станут более широко использоваться.

**Ключевые слова:** онкология, лекарственные растения, растительный противоопухолевые препараты, лечение рака, реабилитация.

**Abstract.** The article deals with the problem of the use of medicinal plants in the treatment of the cancer and also with the problem of the development of alternative herbal therapy in the context of current medicine. The results of the survey show that herbal remedies for the treatment of cancer have not yet earned the necessary level of trust from society, but people believe that in the future they will become more widely used.

**Keywords:** oncology, medicinal plants, herbal anticancer drugs, cancer treatment, rehabilitation.

**Relevance.** The relevance of the chosen topic is undeniable which is due to the fact that in the 21st century there is a rapid increase in the number of oncological diseases followed by an increasing need to find new ways to treat tumors and restore the body after an illness. Scientists are increasingly turning to the potential of nature for help, using plant resources to discover and obtain the required biologically active substances, whose role has become indispensable in the fight against the global problem of mankind.

**Aim:** the aim of this study is to substantiate the rationality and effectiveness of the use of medicinal plant materials in the treatment of cancer.

**Tasks:**

1. to indicate which type of medicinal plants can be used in the treatment of cancer and for the purpose of rehabilitation;

2. to establish in which morphological parts of plants certain biologically active substances accumulate;

3. to describe the mechanism of action of these organic substances on cancer cells, on the body as a whole;

4. to list herbal anticancer drugs, their side effects, dosage form;

5. to analyze the results of the survey among the students of the Belarusian State

Medical University on the level of confidence in herbal medicines for the treatment of cancer.

**Materials and methods.** In the course of the work, we were analyzing and summarizing scientific literature data in the form of books, pharmacopoeias and other sources of information. We also conducted a survey of respondents from the Belarusian State Medical University on the Internet.

**Results and discussion.** An unlimited number of chemical compounds occurring in nature can be used in the treatment of cancer. The medicinal properties of plants result from pharmacologically active substances such as alkaloids, glycosides, saponins, tannins, enzymes, vitamins, hormones, and phytoncides [1].

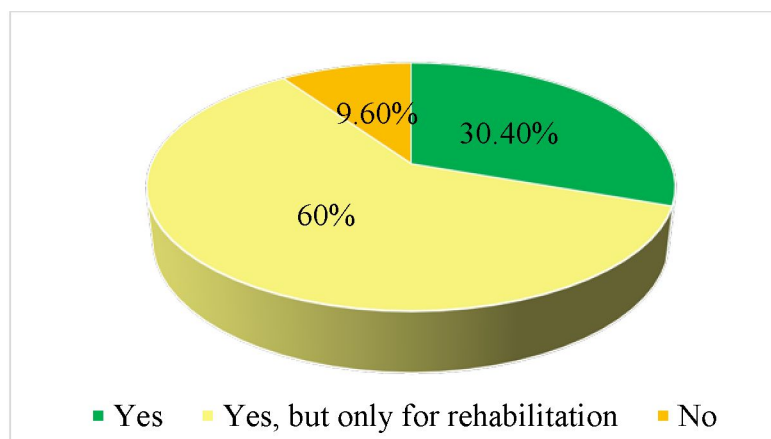
Medicinal plants used in the treatment of cancer can be divided into two groups: plants with a preventive antitumor effect and plants that have a cytostatic effect [2]. The first group represented by Plantago major, Licorice, Sandy everlasting, Narrow-leaved cypress (Ivan tea) can be attributed to biomodifiers, which produce their antitumor effect due to flavonoids affecting mostly the immune and endocrine systems. Periwinkle pink (vinblastine, vincristine), yew tree (taxanes) are plants that have a cytostatic effect [1]. Alkaloids of these plants bind to tubulin preventing polymerization and assembly of microtubules, leading to mitosis arrest in the G2/M phase and cell death. Vinblastine (Periwinkle pink) is used against Hodgkin's lymphoma, non-Hodgkin's lymphomas, testicular tumors, uterine chorionepithelioma, neuroblastoma. Vincristine (Periwinkle pink) is used in combined chemotherapy of hemoblastoses, breast cancer, lung cancer and other tumors [2]. Irinotecan (Camptotheca spiky) is active in colorectal cancer and small cell lung cancer. Topotecan (Camptotheca spiky) is used in the management of platinum-resistant ovarian cancer. Etoposide (Camptotheca spiky) is used for the treatment of lung cancer, non-Hodgkin's lymphomas, acute myeloid leukemia. Teniposide (Camptotheca spiky) can penetrate the blood-brain barrier, so it is used in the treatment of brain tumors, as well as in hemoblastoses [1].

At the 40th American Society of Clinical Oncology (ASCO) Convention June 5-8, 2004 in New Orleans studies comparing Docetaxel derived from the Yew tree and standard chemotherapy were presented. The study involved 1006 patients with morphologically confirmed metastatic prostate cancer. The results of the study clearly demonstrated the advantage of docetaxel over standard treatment regimens in patients with hormone-resistant prostate cancer [3] (see Table 1).

**Table 1.** Efficacy of Docetaxel and Mitoxantrone in patients with prostate cancer.

	Group A Docetaxel 75 mg/ m <sup>2</sup> + Prednisolone 5 mg	Group B Docetaxel 30 mg/m <sup>2</sup> + Prednisolone 5 mg	Group A + B	Group C Mitoxantrone 12 mg/m <sup>2</sup> + Prednisolone 5 mg
Number of patients	335	334	669	337
Lifespan	18.9 months	17.4 months	18.3 months	16.6 months
Reduction of pain syndrome	35%	31%	33%	22%
PSA reduction > 50%	45%	48%	47%	32%

An online survey of respondents from Belarusian State Medical University shows that among the group aged 16-25 only **30%** of respondents consider herbal medicines effective for the direct treatment of cancer, while **60%** of people believe that herbal medicines could only be used for rehabilitation after the illness (see Fig. 1). The majority of the people interviewed (about **70%**) believe that the development of drugs derived from plants sources was a perspective field of medicine and pharmacy, which should be paid more attention to.



**Fig. 1** – Answers to Question 2: «Do you believe in the effectiveness of herbal medicines in the treatment of cancer and for rehabilitation after this disease?»

**Conclusions:** it can be summarized that the use of medicinal plant materials in the creation of drugs to fight cancer is more environmentally friendly, but no less knowledge-intensive than the use of synthetic forms, since the isolation, identification, verification of the activity of organic substances and their safety is a long process that requires sufficient theoretical and practical base. Based on the results of the survey, it can be judged that herbal remedies for the treatment of cancer have not yet earned the necessary level of trust from society, but people believe that in the future they will become more widely used.

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