

MEDICINAL PLANTS AND THEIR BACTERICIDAL ACTION

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The paper presents data on medicinal plants with bactericidal action, their biological role and biologically active substances included in their composition.

Keywords: medicinal plants, bactericidal activity in medicinal plants, chemical composition of plants, flavonoids, tannins, essential oils, alkaloids, vitamins.

Recently, interest in medicinal plants has resumed. The pharmaceutical industry creates a large number of chemicals. On the one hand, they act quickly and accurately, and, on the other hand, many of them are toxic and are not able to restore the disturbed functions of some organs without a negative impact on others.

The most effective substitute for chemicals is herbal medicine, which includes the use of medicinal plants. The potential of herbal medicine is very great, because almost every plant has a wide range of medicinal properties.

Purpose is to study and analyze scientific data on bactericidal properties of medicinal plants.

No matter how effective drugs of chemical origin, medicines from plant raw materials for the treatment of certain diseases are indispensable. The main advantage of herbal preparations is that they impact the human body gently almost without causing side effects.

Medicinal properties of substances are included in the composition of medicinal plants. These substances when entering the human body determine a particular physiological effect.

Biologically active substances have a diverse composition and belong to different classes of chemical compounds. Among the main biologically active substances of medicinal plants are:

1. Flavonoids are a group of compounds through which the activity of plants is evaluated;
1. Tannins with bactericidal and fungicidal properties;
2. Essential oils, which are part of medicinal plants and have antimicrobial and antiviral action;
3. Alkaloids;
4. Vitamins.

Biologically active substances create the so-called pharmacological face of medicinal plants.

In conclusion, many medicinal plants due to the presence in its composition of biologically active substances have strong antimicrobial properties, but herbal remedies have a number of effects, such as anti-inflammatory, immunostimulatory and antihypoxic, facilitating the patient's condition and contributing to a faster recovery.

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DNA VACCINES: MECHANISM OF ACTION, PERSPECTIVES OF USING

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DNA vaccines using is promising for the treatment of cancer and autoimmune diseases. DNA vaccine is able to induce cellular and humoral immune response. DNA vaccines are characterized by selectivity, no risk of virulence reversion, high stability. Their use is safe, has no side effects. In the environmental aspect their production does not have a detrimental impact on the environment.

Keywords: DNA vaccine, DNA vaccines action, oncological diseases, autoimmune diseases.

The growth of incidence of autoimmune and oncological diseases is associated with the impact of environmental factors. One of the promising areas of therapy is the use of DNA vaccines.

The aim: to review scientific literature on DNA vaccine technologies and prospects for the use of DNA vaccines in the therapy autoimmune and oncological diseases.

DNA vaccine (gene vaccine) is a genetically engineered design that, once injected into a cell, produces pathogen proteins, thereby inducing both cellular and humoral immune responses. DNA vaccine is a vector with embedded cDNA of tumor antigen (autoantigen) with a powerful promoter that provides long-term expression of transgenes. The composition also includes auxiliary elements that guide the development of the immune response (genes of cytokines and chemokines that form both the innate and adaptive immune response).

After injection of DNA vaccine, nucleic acid by endocytosis penetrates into the cell and forms an endosome. DNA leaves the vesicle and enters the nucleus. There is transcription of the encoded antigen in the nucleus, and then protein syntheses and release of the cytoplasm. Antigenic peptides in complex with the molecule of the main histocompatibility complex I and II are expressed on antigen presenting cells (APC). APC, carrying the antigen, are sent to the lymph node, where they activate the B and T cells. Internal elements of plasmid DNA activate innate immune responses, thereby enhancing adaptive immune responses against expressed antigens.

The researches were focused primarily on assessing the safety and immunological response of DNA vaccines in 2009-2019 years. Vaccines against breast cancer (NCT02348320 and NCT0215705), cervical cancer (NCT02172911), ovarian cancer (NCT01322802 and NCT0302961) and pancreatic cancer (NCT03122106) were tested [1]. A vaccine against cervical dysplasia VGX-3100, which has already passed the 1st phase of clinical trials, has been developed. Most of the research is devoted to preventive immunization with DNA vaccines against human papillomavirus. Clinical trials of DNA vaccines against human cytomegalovirus have provided in 2019 [2]. DNA vaccine HER2/NEU V930 was demonstrated intensive humoral and cellular immune response without immune response against vaccine [1].

Modern generations of DNA vaccines are becoming more immunogenic, but there is a need to use the immunostimulants. Currently, it is experimentally proved that the use of a special vector (pCI/pins) causes a reaction on the part of Treg cells and control over autoreactive effector CD8+T cells [3].

DNA vaccines are characterized by selectivity, no risk of virulence reversion, high stability, safe-using and they have no side effects. In the ecological aspect, DNA vaccines production does not have a detrimental impact on the environment.

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PIZOOTIC MEASURES AS A FACTOR FOR PREVENTION OF INFECTIOUS DISEASES AMONG THE INHABITANTS OF MINSK ZOO

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Keeping large numbers of animals in limited areas is always a concern in terms of infectious pathology. The only way to counteract this is through the use of modern means of active immunization and adheres to veterinary and zootechnical standards of feeding and animal husbandry.

Keywords: wildlife, infectious diseases, zoo, anthroponosis, epizootic welfare, preventive measures.

Infectious diseases represent a socio-economic problem for many countries of the world. Currently, about 500 infectious animal diseases are registered, 200 of which are zooanthroponoses (a group of infectious and invasive diseases common for animals and humans). Over the past 30 years, about 100 infectious diseases have been diagnosed in the Republic of Belarus, more than 40 of which are common for animals and humans. The number of infectious diseases registered in Belarus is constantly increasing. For example, over the last 15-20 years about