International Journal of
Biological Engineering and Agriculture

ISSN: 2833-5376
Volume 2 | No 10 | Oct -2023

Cadastral Processing of Medicinal Plants

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Abstract: This article deals with the cadastre and safety of medicinal plants.

Keywords: Medicinal plant, medicine World Health Organization, drug safety, disease.

Medicinal plants include wild and cultivated plants used for the prevention and treatment of human and animal diseases.

Currently, about 20 thousand species of medicinal plants are used in scientific and folk medicine.

The use of medicinal plants is carried out, as a rule, after their experimental study and clinical research; their use is regulated by special regulatory documents approved by government agencies.

The scale of consumption of medicinal plant preparations can be judged by the volume of procurement of medicinal plant raw materials, of which about 10 thousand tons are annually prepared in Uzbekistan alone.

In recent years, there has been a significant increase in the consumption of medicinal plants and drugs based on them. This growth is due to several factors: over-the-counter sales of medicinal plant preparations, often more affordable prices, the use of medicinal plants as part of dietary supplements, and the widespread opinion among the population about the safety of medicinal plant preparations.

Data have been published on the use of medicinal herbal preparations by the US adult population in 2002. An analysis of the consumption of medicinal herbal preparations in the United States showed that 38 million American adults use medicinal herbal preparations.The most commonly used medicinal plants were: echinacea, ginseng, ginkgo, garlic, St. John's wort.

Most often, medicinal plant preparations were used to treat “colds”; 29.7% of Americans took them. For diseases of the stomach and intestines, medicinal plant preparations were used by 10.6% of patients; for arthritis and gout - 8%; for anxiety and depression - 5.5% of patients. Only 30% of patients consulted a doctor about the use of medicinal herbs.

Along with certain “advantages,” medicinal plant preparations have significant “disadvantages” associated with the standards of their quality, safety and therapeutic effectiveness.

In 1998, the World Health Organization published reports that analyzed the requirements of regulatory authorities in 50 countries for the quality of medicinal plant preparations. It turned out that there are significant differences in the requirements of regulatory authorities in different countries in assessing the quality, safety and effectiveness of medicinal plant preparations. These differences concerned both the analytical parameters of medicinal plant preparations and the assessment of their therapeutic effectiveness and methods of selling medicinal plants.

For example, in Germany and France, ginkgo and St. John's wort are available on prescription; but in a number of other countries, preparations of these medicinal plants are included in dietary supplements.

Currently, extensive experimental and clinical material has been accumulated characterizing the toxicity of specific biologically active substances contained in medicinal plants. However, these data are not unified and are not compiled into any national or international regulatory documents.

There are separate conclusions of the European Committee for Medicinal Plants assessing the toxicity of substances in some medicinal plants. However, the legal status of such conclusions is not defined.

The safety problem is especially acute for those medicinal plants that cause severe adverse reactions or for which carcinogenic, mutagenic, or embryotoxic effects have been experimentally established. Thus, according to available data, calamus, aristolochia, coltsfoot, comfrey, and centella are medicinal plants with a potential carcinogenic effect. However, risk assessment criteria for the use of these medicinal plants have not been developed. Although the toxic substances of these medicinal plants have been established, but without determining their maximum permissible concentrations, introducing these indicators into regulatory documents, the issues of safety for the medical use of these medicinal plants remain unresolved.

There are only a few scientifically based solutions for assessing the safety of medicinal plants containing substances with potential carcinogenic activity.In the early 90s in Germany, companies that developed a herbal medicine based on ginkgo biloba leaf extract determined the maximum permissible concentration for ginkgolic acids contained in the extract, which can have carcinogenic, mutagenic, embryotoxic and immunotoxic effects.

As a result of an experimental study, it was found that the content of ginkgolic acids in the extract of Ginkgo biloba leaves should not exceed 5 ppm. This standard is included in the European Pharmacopoeia and the United States Pharmacopoeia; it has been accepted by most companies producing the extract and is still in effect today.

In 1978, a commission of experts was created under the German Ministry of Health to objectively assess the therapeutic effectiveness and safety of medicinal plants. The commission included leading specialists in various fields: pharmacists, phytopharmacologists, chemists, toxicologists, doctors. Commission E reviewed materials on 299 herbal remedies: 191 medicinal plants were recommended for medical use for specific indications; 108 medicinal plants were not recommended due to lack of reliable clinical and/or toxicity data.

Of the 108 medicinal plants not recommended for medical use, 50 medicinal plants were rejected due to their toxicity.

For a number of toxic substances of medicinal plants, maximum permissible concentrations have been established, and the mechanisms of their toxic action have been studied. Restrictions have been introduced on the use of a number of medicinal plants in the manufacture of certain food products and drinks.

For example, in the EU, the use of angelica roots as a flavoring agent is limited depending on the content of coumarin and furanocoumarin in it; in food products and drinks the amount of ß-asarone contained in calamus is standardized; The content of thujone contained in sage is limited to 0.5 mg/kg in food products.

Modern English-language reference books on medicinal plants contain fairly complete information about adverse reactions associated with the use of medicinal plants.

Judging by the literature, medicinal plants most often cause allergic reactions.

Often the development of undesirable reactions of medicinal plants is associated with an overdose of their active principle. For example, increased blood pressure, difficulty falling asleep, and stimulation of the central nervous system when taking medicinal plants with a stimulating type of action. This type of adverse reaction develops quite quickly, has a characteristic clinical picture and does not pose a danger to the health of patients.

At the same time, a number of medicinal plants cause undesirable reactions that develop slowly and do not have pronounced symptoms during their development.

The overwhelming number of consumers of medicinal plant preparations do not realize that over the past 20-30 years the problem of the safety of medicinal plants has become global due to a sharp increase in the amount of contaminants in the environment, primarily pesticides and toxic metals. To improve the safety of medicinal plant preparations, the Pharmacopoeia of the EU, the USA and a number of other countries have introduced maximum permissible concentrations for toxic metals and the most toxic pesticides.In our country, control over the content of toxic metals and pesticides is carried out by the sanitary-epidemiological service, which monitors their content in soil, water, food products, vegetables, fruits and dietary supplements. The requirements of the sanitary service comply with, and in some cases exceed, the requirements of the European Pharmacopoeia. At the same time, control over the content of pesticides in medicinal plants and medicines based on them is not carried out in Uzbekistan. The State Register of Medicines in 2008 registered 115 medicinal plants, 99 herbs, as well as preparations based on them. The potential dangers of these drugs to the consumer are not regulated by any regulations.

The problem of the safety of medicinal plants is of great practical importance, since medicinal plant preparations in Uzbekistan make up up to 30% of the pharmacy assortment and are usually sold without a prescription. Most users of herbal medicines do not consult a doctor about the safety and effectiveness of these medicines.

The problem of the safety of medicinal plant preparations can largely be solved at the information level. Currently, medicinal plant preparations of similar composition produced by different manufacturers differ significantly in the completeness of information about potential adverse reactions.In this regard, in the instructions for the use of medicinal plant preparations approved in Uzbekistan for medical use, it is necessary to unify the sections reflecting the safety of the drug; indicate all identified adverse reactions of the drug, describe in detail contraindications for use and interactions with drugs.

This is especially true for preparations, the instructions of which almost never indicate adverse reactions; there is no information on possible use with other drugs.

Instructions for the use of medicinal plant preparations must indicate those indications that are based on clinical data obtained using the criteria of evidence-based medicine.

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