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Analysis Of Medicinal Plants Against Diabetes And Collections Based On Them, As Well As Bioactive Additions

Jalilov Utkirbek Mamarakhimovich

Tashkent Pharmaceutical Institute, Department of Drug Technology, UZ senior lecturer, Uzbekistan

Kasimov Saidali Doniyorbek ugli

Tashkent Pharmaceutical Institute, Master's student in the specialty "Technology of Medicines and Preparations", Uzbekistan

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Abstract: This article provides information about medicinal plants used in medicine against diabetes, as well as in its prevention, and remedies, compositions, substances obtained on their basis, and their technologies. During the research, the results of studying dozens of representatives of local medicinal plants and their individual properties, as well as the properties of their collections, indications for use, in the treatment of diabetes mellitus, the beneficial properties of medicinal plants and collections, and their technological properties are presented.

Keywords: Diabetes, sugar content, glucose, insulin, cumulative, diet, metabolism, extract, phytotea, bioactive supplement, technology, medicinal plants.

Introduction: Diabetes mellitus is a metabolic disorder characterized by a decrease in insulin levels in the blood and an increase in glucose levels. In the treatment of diabetes, antidiabetic drugs are of great importance. One of the important directions in medicine is the use of herbal preparations with mild effects, low side effects, and high effectiveness. For the prevention and treatment of diabetes, medicinal plants containing a number of biologically active substances are used.

In developed modern medicine, herbal remedies used in the treatment of diabetes mellitus are of great importance due to their relative harmlessness, healing properties, including normalizing blood glucose levels, anti-obesity, and other properties. Plant preparations and formulations with an antidiabetic effect are used to stimulate insulin production processes and facilitate digestion[1].

In the field of endocrinology, various blood sugar-lowering agents are recommended as an antidote to diabetes and concomitant diseases caused by a decrease in insulin levels.

Depending on the technology of obtaining medicinal plant preparations and complexes against diabetes mellitus, various extracts can be obtained from ground plant materials. These extracts contain several medicinal substances isolated using various separators, and also in the crushed plant material during the preparation of the compositions, biologically active substances are fully present.

Purpose of the research: development, analysis, generalization of drugs, biologically active substances, and kits with antidiabetic effects and their technologies.

METHODS

When obtaining extracts from medicinal plants, the selection of the extractant is carried out depending on the type of plant, the part of the raw material, and the groups of biologically active substances contained in it. Usually, various potent ethyl alcohol, water, essential oils, or other separators are used in work processes. Extraction processes utilize maceration, percolation, and ultrasonic extraction methods [2].

One of the promising methods is obtaining extracts using ultrasonic extraction. In ultrasonic extraction, the plant is soaked in a separator and subjected to

ultrasonic exposure, in which the plant tissues are subjected to high-speed vibrations under high pressure and vacuum due to the phenomenon of cavitation. As a result, organic substances in tissues, including substances that can be released into the excretory medium, are released into the excretory medium, i.e., the extraction process occurs. With this method, it is possible to carry out extraction processes both in the laboratory and on an industrial scale.

Below, taking into account the demand and interest in medicines based on medicinal plants, including antidiabetic preparations and kits, information is provided on the main antidiabetic drugs and medicinal plant-based kits, their mechanisms of action, indications for use and features of use, technologies for obtaining them, and the use of products obtained from various medicinal plants in medical practice.

RESULTS

Below are several plants, assortments, and biologically active supplements used in the treatment of diabetes mellitu

Beans (Galega officinalis) - a rhizomatous perennial herbaceous plant of the legume family, the aerial part of which is used in folk medicine for the treatment of snake bites, infections, edema, as well as for milk loss in breastfeeding women. In modern medicine, biologically active additives with antidiabetic, diuretic, diaphoretic, lactogenic, and anthelmintic effects are produced from it.

Properties of medicinal peas: helps reduce blood sugar levels, normalizes metabolism, restores kidney function, gently removes excess fluid from the body, stimulates milk production in nursing mothers, eliminates inflammation, and fights infections. Beans are also included in antidiabetic formulations[5].

Bean peel (Phaseolus) is a typical genus of annual plants of the legume family, with about 97 species found in warmer regions of the world. In addition to proper hypoglycemic properties, it has anti-inflammatory and anti-rheumatic, as well as diuretic and antibiotic effects. They dissolve stones in the bladder and kidneys, lowering blood pressure. Due to the high content of valuable substances in bean pods, they are widely used for medicinal purposes. Medicinal and beneficial properties of bean peel: reducing blood sugar levels, fighting excess weight, eliminating hypersensitivity and hypertension, anti-rheumatic effect, diuretic, removal of kidney stones, elimination of skin diseases, treatment of chronic pancreatitis and cardiovascular pathologies. In medicine, decoctions and infusions are made from bean peel, and it is also included in antidiabetic formulations.

Use in diabetes mellitus (when sugar levels increase), at home. The peels are ground into powder using a coffee grinder and 400 ml of boiling water is poured over 50 g of raw material. After 12 hours of infusion, take 120 ml before meals.

Safflower (Salvia) or sage is a large genus of perennial herbaceous plants and shrubs belonging to the Lamiaceae family. Preparations made from the aerial parts (leaves and flowers) of medicinal sage have a sugar-lowering, anti-inflammatory, astringent, antiseptic, hemostatic, softening, and diuretic effect, reducing sweating. Mavrak is also used in the form of a decoction or infusion for stomatitis, bleeding gums, as a astringent and antiseptic for rinsing the mouth in tonsillitis, and in the form of sprinklers for gynecological diseases. The medicinal sage plant inhibits lactation in nursing mothers and has a positive effect on gastritis, colitis, stomach ulcers, meteorism, and gallbladder inflammation.

It has been established that sage extract helps reduce blood glucose levels in rats with type 1 diabetes by activating a specific receptor. When these receptors are activated, they can cleanse the blood of excess free fatty acids. This improves insulin sensitivity. Another study on mice with type 2 diabetes showed that sage tea has the same effect as metformin, which regulates blood sugar levels in people with the same disease[4].

Dandelion (Taraxacum) is the most popular species of the dandelion genus of the Dandelion family. It is a perennial herbaceous plant, reaching a height of 10-40 cm. Its distribution range extends throughout the CIS, except for the far north. The flowers, leaves, and roots of dandelion are used in medicine as a healing remedy. The presence of bitter glycosides, taraxerolic compounds, and other substances in the composition of dandelion root has been established. Its roots are also a sugar-lowering, choleretic, appetite-stimulating, and gastric-inducing compound tea. Antihyperglycemic, antioxidant, and anti-inflammatory properties of dandelion helped in the treatment of patients with type II diabetes mellitus. The roots of the plant contain soluble fiber (inulin). Moving throughout the body in an undigested form, it helps slow down the absorption of sugar into the bloodstream by improving long-term control of blood sugar levels [3].

Stevia (Stevia) is a genus of perennial plants belonging to the Asteraceae family, comprising approximately 260 herbaceous and shrub species that grow mainly in the Americas. Crushed leaves of honey stevia have long been used as a natural sweetener, and now as a sugar substitute due to the growing need for low-carbohydrate and low-sugar diets. Plant leaves, their aqueous extract, and isolated glycosides (stevioside

and rebaudioside) are typically used as sweeteners. Stevia leaves are 30 times sweeter than sucrose, and the isolated steviazides are 250-300 times sweeter. Unlike artificial sweeteners (such as cyclamate and saccharin), stevia is not only not carcinogenic but, on the contrary, very beneficial. Stevia is low in calories, does not contain glucose, and therefore is absorbed without the help of insulin, which is very important for diabetics [6].

Ginko biloba (Ginko biloba) is currently the only representative of the gymnosperm family of the ginkgo family. The tree reaches a height of up to 40 m and a diameter of up to 1 m; young seedlings resemble some coniferous trees. It grows wild only in some parts of China. It is cultivated in southern Crimea and on the Black Sea coast of the Caucasus. Extract obtained from the leaves of Ginco biloba is used in medicine to improve the function of small blood vessels. It is also widely used for improving brain function, diabetes, and other purposes [7-8].

Cichorium intybus is a perennial herb with a thick root, belonging to the Asteraceae family. It is used as a medicinal plant and among the people as a spice, as well as a substitute for coffee. The famous Abu Ali ibn Sina used sachratqi to treat diseases of the gastrointestinal tract and eyes, eye inflammation, and gout. In modern medicine, sachratqi has found a wide variety of applications due to its beneficial medicinal properties (calming, sugar-lowering, astringent, choleretic, diuretic, anti-inflammatory, antipyretic, anthelmintic properties). The anti-diabetic and anti-obesity effect of chicory is valuable due to the high content of the high-molecular-weight polysaccharide inulin in its roots. It is inulin that helps reduce blood sugar levels, improve metabolism and digestion, therefore, all its properties are considered important in the complex prevention and treatment of diabetes.

Phytodiabetol syrup 250ml. Produced in Russia (Bioinventika LLC). Use: in diabetes, as a source of vitamins. Composition: blueberry branches, common bean peel, medicinal gallega herb, bird cherry herb, great ash root, water extract of cinnamon rosehip fruit, vitamin E420, E440, vitamin 9-14 premix (vitamin C, vitamin B1, vitamin B6, vitamin B3, vitamin B5, vitamin B9, vitamin H, vitamin B12), E202. Take 15 ml 3 times a day [10].

Diabefit tea. Supports pancreatic function, improves metabolism and mood. Composition: dandelion root, mint leaf, chamomile flower, cherry grass, valerian root, thyme root, oat straw, flaxseed, bean pods. Method of use: 1 filter bag of 2 g is placed in a beaker (200 ml), hot water is poured over it, and it is steeped for one night. The infusion is taken 200 ml 3 times a day after meals. The duration of admission is from 15 to 30 days[11].

STOP Diabetic Elixir, 300 mg 180 Oil Capsule. Plant extracts of chamomile, beans, bean pods based on unrefined flaxseed oil, omega-3 and gelatin mass [12].

FITOCHOY GLYUNORM. Filter-package 25 pieces per 1 gram. Manufactured by Zamona Rano company. Properties of tea: to normalize carbohydrate metabolism, normalizes metabolism, especially carbohydrate metabolism, to support pancreatic function, to prevent the development of carbohydrate metabolism disorders (diabetes mellitus), recommended as an additional source of biologically active substances. Composition: leaves of nettle (Folia urticae), young shoots of blueberry (Myrtilliherba), wild geranium (Herba hyperici), wild buttercup (Herba hypericiscabri, dagaldalachoyoti), field horsetail (Herbaequisetiarvensis), nettle (Herba bidentis), chamomile (Flores chamomillae), blueberry fruits (Myrtilli fructus), rosehip fruit (Fructus Rósae), tall andiz or (Rhizomata et radices Inulae, andiz root bark), large andiz (Rhizomataetradices Inulaegrandis, andiz yellow root). Preparation and dosage: 500 ml over 2 g of herbal tea (2 packets for single brewing)

CONCLUSION

Medicinal plants, formulations, and biologically active supplements are important in the treatment of diabetes. They are lighter and harmless compared to synthetic agents, do not harm the body, and allow their use in patients in need of constant medications, such as diabetes. In the treatment of diabetes, it is possible to use a single plant product or several plant groups. Plant-based phytopreparations recommended for the treatment of diabetes have some drawbacks. Their weak effect and limited effectiveness in acute cases necessitate their combination with other treatment methods when necessary. Phytotherapy is constantly developing, increasing the scope and interest in its use due to the accumulated experience and positive results of treatment.

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