



USEFUL PROPERTIES OF THE TROPHY PLANT

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Abstract: This scientific article provides information on the beneficial properties of Jerusalem artichoke, that is, earth pear.

Key words: *Helianthus tuberosus* L, Pea, tuganak, biologically active substance, extractive, inulin, pectin, polysaccharides, medicinal, chemical, ash, moisture.

Analyzing biologically active substances in plants from a chemical point of view, studying their structure and properties, on the one hand, develops the science of chemistry and leads to the emergence of new directions in it, on the other hand, it causes the creation of modern effective medicinal substances and their application in medical practice.

Currently, 1/3 of medicinal substances used in medicine are created on the basis of plant substances. Medicinal preparations obtained from plants have a number of advantages over synthetic substances. Recently, the demand for them is increasing. One of these plants is pear. Because this plant contains many biologically active substances.

Appearance of *Helianthus tuberosus* L. Plant – tuberous plant, sunflower seed, belongs to the aster family (Asteraceae).



a)



b)

Helianthus tuberosus L., Yer nok o'simligi.

North America is considered the homeland of the pear, and before the discovery of North America by the Europeans, the roots of the pear were consumed as food by



the Brazilian Indians (the name of the plant also comes from the name of this Indian tribe – «tupinamba»).

Useful properties of pear. Pears contain inulin and pectin from polysaccharides, which ensure the removal of many toxic substances from the body. Pectin and inulin further activate the work of the gastrointestinal tract and stimulate the activity of bile.

Eating pear makes the body more resistant to various infections and viruses, as well as substances that poison the digestive organs. Its beneficial substances do not allow various bacteria and parasites such as giardia, opisthorchis to enter the body. It is distinguished by the characteristics of the formation of normal microflora in the intestines. Therefore, it is very useful for those suffering from dysbacteriosis.

Pears are useful for mucous membranes and stimulate their blood supply. It is useful in the treatment of heartburn, duodenum, duodenitis, colitis, gastritis, enteritis, pancreatitis, heartburn, diarrhea and constipation.

It can be used in the treatment of diabetes, pancreatitis, intestinal inflammation and hypertensive diseases. At the same time, nitrates that enter the body dissolve slag, stones, and salts. Pears normalize stomach-intestinal functions, urinary tract, and upper respiratory tract.

Based on this, it was aimed to analyze the composition of the pear plant from a chemical point of view.

In order to achieve the goal, the extractive substances of the above-ground and root parts of the pear plant were extracted and analyzed chemically. The obtained results are presented in Table 3.1.1.

**Yer nok o'simligi tarkibidagi kul, namlik va ekstraktiv moddalar miqdori
1.1-jadval.**

O'simlik					
Ko'k massasi					
		%			%

Extractive substances and ash content were studied.

From the obtained results (Table 1.1), it was known that the formation of a red solution under the influence of concentrated hydrochloric acid and zinc powder using alcoholic extracts indicated the presence of flavonoids.

To be more precise, a golden yellow color characteristic of flavonols when heated by adding ammonia solution to the extractives, a clear yellow precipitate characteristic of flavones under the influence of lead(II)-acetate, 5% of aluminum chloride when dropped from the solution, the color of the solution turned yellow,



characteristic of most flavonoids, and when exposed to a 5% solution of iron(III)-chloride in alcohol, a green color characteristic of flavonoids was formed.

In order to determine the presence of vitamins in the alcoholic solution, when the solution is shaken with a saturated solution of red blood salt and 1.0% of iron (III) chloride, the liquid turns blue, which indicates the presence of ascorbic acid in the extractives.

In addition, it was found that the liquid became colorless when heated from a solution of 0.01% methylene blue and 10% sodium bicarbonate.

It should be noted that there are more Ca, Mg, Fe among the ash elements in the plant. At the same time, it was found that 5-6% of Ca and 3-3.5% of magnesium are present in the green mass.

The presence of citric acid from organic acids in the extractive substances of the green and stem of the plant was determined by qualitative reaction. For this, two test tubes were fitted with a gas outlet tube, and 10 drops of sulfuric acid were added to them, and the test tubes were heated. Separately, two test tubes were taken and barium hydroxide solution was dropped into one, two drops of iodine solution in potassium iodide were dropped into the other test tube and 10% sodium hydroxide solution was added for decolorization. As gas began to escape from the first test tube into the heater, when the tube was lowered into the test tube containing the barium hydroxide solution, the solution became colorless. Then, the gas outlet tube was lowered into the second test tube. In the second test tube, a pale yellow precipitate with a peculiar smell was formed. When the second test tube was heated and the same experiment was conducted, the above situation was revealed. So, citric acid is indeed present.

Citric acid is considered α -hydroxy acid, and when it is heated in the presence of sulfuric acid, the decarboxylation process takes place, and as a result, it turns into acetone.

The presence of pectin from polysaccharide modes in the extractives was also checked based on qualitative reactions. For this, the following method was used: monitoring the formation of flocs under the influence of alkaline earth metals.

In order to determine the presence of pectin substances in the extractives obtained in aqueous medium, when calcium hydroxide was added to it, a small amount of precipitate was slowly formed. But when barium hydroxide was added, a relatively large amount of precipitate was formed. Floccules were not formed under the influence of sodium, potassium and ammonium hydroxides. From this, it became known that the composition of the estrogen contains a soluble pectin substance.

Conclusion: In conclusion, it can be said that now the polysaccharides isolated from the root of the pear plant have many beneficial properties for the human body and can be used in the treatment of patients suffering from diabetes and stomach diseases.



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