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PROPERTIES OF MEDICINAL PLANTS CONTAINING ALKALOID SUBSTANCES

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Abstract: To enrich students' knowledge about medicinal plants containing alkaloids (millipedes, yarrow, bitter melon, catharanthus), to teach them how to use them properly, and to develop practical skills. Learn how to prepare tinctures and decoctions at home from medicinal plants containing alkaloids.

Key words: Aymalin, serpentine, loxnerin, mingdevona, bangidevona, scopolamine, Wilson's tumor.

Introduction. The amount and composition of alkaloids in a plant is constantly changing dynamically. This change depends on the location and conditions where the plants grow. Alkaloids usually accumulate in the above-ground parts of plants before or during flowering. After plants have flowered, alkaloids accumulate in their underground organs (especially the bulb) and partially in the fruit (if they are perennial herbs), and in the fruit of annual herbs. Sometimes alkaloids can accumulate in large quantities in the above-ground part of the plant when it is just starting to bud. Alkaloids are substances consisting of very complex organic compounds with nitrogen-fixing and alkaline properties that accumulate in various organs of plants. These substances have a unique physiological effect. Various drugs, such as morphine, papaverine, quinine, caffeine, and codeine, are produced from alkaloids. They are widely used in medicine to treat various diseases.

Datura stramonium is a perennial herb (cultivated as an annual) that grows to a height of 60-150 cm. The stem is erect, greenish or reddish-purple, stiff, and branched in a spiral pattern. The leaves are simple, slightly serrated at the edges, arranged in a row on the stem, and have a heady, unpleasant odor. The flowers are large, white, and bloom only for one night. The calyx is erect, five-toothed, swollen and long-tubular, the base remains with the fruit, the corolla is tubular, funnel-shaped, five-toothed, with recurved tips; The paternal node is 5, the maternal node is located above. The fruit is a many-seeded, spherical, gray-green or brown capsule with thorns. The Mexican hibiscus blooms from July to October, and its fruits ripen from August.

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Figure 1. Datura stramonium -

Main part. All parts of the plant are poisonous. Homeland Central and South America. It is grown in the Poltava and Shymkent regions, the Krasnodar Territory, Crimea, and the Republic of Moldova. All parts of the plant contain alkaloids (0.23–0.39% in leaves, 0.15–0.24% in stems, 0.21–0.46% in roots, 0.76–0.83% in fruits, and 0.83% in seeds). The main alkaloid is scopolamine. The fruit contains 0.38–0.55% scopolamine and the seeds contain 0.31–0.77%. In addition to scopolamine, hyoscyamine, norhyoscyamine, and other alkaloids have been isolated from the fruit. Scopalamine hydrobromide. The compound formed by the alkaloid scopolamine with camphor is part of the drug Aeron. The pink catharanthus roseus (Catharanthus roseus) belongs to the Apacynaceae family. An evergreen shrub with an erect or spreading stem (elongated) 30-60 cm tall. The stem is cylindrical, hairless or hairy in baozi forms. The leaves are elliptical or oblong-elliptical, dark green, shiny, with thick, flat edges, and are arranged oppositely on the stems and branches with short petioles. Large,

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beautiful, red-pink flowers grow in clusters of 2-4 from the leaf axils at the top of the stem. Gulkurgoni is complicated.



Figure 2. Catharanthus roseus - pink catharanthus

The calyx is five-lobed, green, with fused petals, sometimes white, pink, and red. The fruit is a drupe. It grows wild in humid tropical areas in Indonesia (on the island of Java), Vietnam, Malaysia, India, and other countries. It is grown on the Kobuletsky state farm, located on the Black Sea coast of the Republic of Adjara. The leaves of the plant are harvested when it begins to bloom and bear fruit. To do this, secondary branches are cut at a height of 10-15 cm from the ground and dried in dryers at 40-50°C. Then the dried product is crushed and separated from large stems. The product contains up to 80 alkaloids belonging to two groups of indole derivatives: mononers (aymaline, serpentine, lochnerine, etc.) and dimers (vinblastine, vincristine, etc.). Monomer alkaloids have the same effects on the body as rauwolfia alkaloids. Dimer alkaloids are of particular interest. Six of them have the effect of treating malignant tumors - cancer, and two of them - vinblastine and vincristine - are used in medicine. In addition to alkaloids, the product also contains oxycarboxylic acids, flavonoids, glycosides, and other substances. Rozevin sulfate (vinblastine sulfate) (released in ampoules and dried in glass bottles), vincristine sulfate (released in ampoules and dried in glass bottles together with the solvent in the ampoule).

Research results. Scopolamine has a sedative effect on the central nervous system (unlike atropine). Therefore, scopolamine hydrobromide is sometimes injected subcutaneously with morphine before surgery to calm the central nervous system. It is also used in the treatment of nervous disorders, as well as as a sedative and antiemetic for seasickness and other diseases (as part of aeron).

Catharanthus medicinal products are used in the treatment of some cancers (rosevin-vinblastine for lymphogranulomatosis, hematosarcoma, myeloma, and vincristine for neuroblastoma, leukemia, Wilson's tumor, melanoma, breast cancer, and other tumors). These drugs have a cytotoxic (cancer cell-killing) effect**.**

Conclusion. Alkaloids are the most valuable medicinal substances used in medicine. They are specific and non-substitutable with other drugs, and are widely used. The leaves of plants such as pepper fruit, the above-ground parts of heather, yarrow, red clover, and bitter melon, the leaves of shy

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mimosa, yarrow, yarrow, magnolia, catharanthus, and black cohosh, the leaves, above-ground parts, and roots of belladonna, and the above-ground parts of isfarak and isirik are rich in alkaloids. If a plant is considered as a whole organism, alkaloids can perform different functions depending on their structure and the nature of the plant. They can serve as reserve nutrients and protective substances at certain times, as well as as necessary compounds that actively participate in biochemical processes occurring in plant tissue**.**

References

1. Xolmatov X.X., Ahmedov O‘.A. Farmakognoziya. Toshkent, “Ibn Sino” NMB, 1995 y.
2. Shukurova, S. (2024). Optimizing synergies: Effective strategies for integrating economic and environmental interests in sustainable development. In E3S Web of Conferences (Vol. 587, p. 04007). EDP Sciences.
3. Tuyg‘Unovn, S. S. (2025). TRIGONELLA FOENUM-GRAECUM VEGETATSIYA DAVRI VA UNDAGI FOYDALI MODDALARINING VEGETATSIYA DAVRIGA BOG’LIQ KO’PAYISH DINAMIKASI. Central Asian Journal of Academic Research, 3(3), 174-178.
4. qizi Amonova, G. R., Tuygunovna, S. S., & Rashidovna, O. G. (2025, November). Growing Medicinal Plants (Example of Silybum marianum) in Bukhara Region. In Proceeding of International Conference on Biology Education, Natural Science, and Technology (pp. 340-348).
5. Tuyg’unovna, S. S. (2024). MEDICINAL PLANTS THAT ARE WIDELY USED IN NATURE, RICH IN VITAMINS. ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 39(3), 242-247.
6. Tuyg’unovna, S. S. (2024). THE PROCESS OF PACKAGING MEDICINAL PLANTS. ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 39(3), 248-256.
7. Tuyg’unovna, S. S. (2024). ABOUT USEFUL MEDICINAL PLANTS RICH IN LIPIDS USED IN MEDICINE. ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 39(3), 235-241.
8. Tuyg’unovna, S. S. (2024). TARKIBIDA EFIR MOYLAR BO’LGAN DORIVOR O’SIMLIKLAR. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 4(3), 164-167.
9. Tuyg’unovna, S. S. (2024). CULTIVATION OF MEDICINAL PLANTS AND FORMS OF PREPARATION. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 4(5), 71-75.
10. Tuyg’unovna, S. S. (2024). SYSTEMATIC ANALYSIS OF MEDICINAL PLANTS. Лучшие интеллектуальные исследования, 19(5), 159-164.
11. Tuyg’unovna, S. S. (2024). DORIVOR O’SIMLIKLARNING SISTEMATIK TAHLILI. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 4(4), 180-184.
12. Tuyg’unovna, S. S. (2023). USEFUL PROPERTIES OF THE MEDICINAL PRODUCT AND USE IN MEDICINE. Gospodarka i Innowacje., 40, 179-181.
13. Tuyg’unovna, S. S. (2023). CHEMICAL COMPOSITION OF MEDICINAL PLANTS AND CLASSIFICATION. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(11), 33-35.
14. Tuygunovna, S. S. (2023). Ways to Use Mint and Peppermint. EUROPEAN JOURNAL OF BUSINESS STARTUPS AND OPEN SOCIETY, 3(12), 20-23.