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MEDICAL APPLICATION OF ALKALOIDS FOUND IN MEDICINAL PLANTS

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Annotation: In this article the chemical properties, biological activity, and medical use of alkaloids found in medicinal plants. Using alkaloid-containing plants such as belladonna, henbane, datura, ephedra and catharanthus as examples, it highlights their pharmacological effects, role in treatment, and the need for careful use. The report also analyzes the importance of alkaloids in modern medicine, pharmacy, and phytotherapy.

Keywords: alkaloids, medicinal plants, biologically active compounds, pharmacology, medicine, phytotherapy.

Introduction. Medicinal plants have long been widely used in both traditional and modern medicine. The biologically active compounds they contain exert various pharmacological effects on the body. Alkaloids are one such important group of substances.

Alkaloids are nitrogen-containing natural organic compounds possessing potent physiological activity; they constitute the primary active ingredients in many pharmaceutical preparations. The flora of Uzbekistan is exceptionally rich in alkaloid-bearing medicinal plants; consequently, the study of this subject is of significant importance to the fields of pharmacy, medicine, and biology [1]. Research into the chemical structure, pharmacological properties, isolation, and medical application of alkaloids represents one of the most pressing topics in the science of medicinal plants. Alkaloids are nitrogenous compounds with basic properties that typically occur naturally in plants. They often possess a bitter taste and exert powerful physiological effects. While many alkaloids are isolated in crystalline form, others occur as liquids or in amorphous states. Alkaloids may accumulate in various parts of the plant, such as the leaves, roots, stems, fruits, and seeds. Their concentration depends on factors including the plant species, growing conditions, the vegetation period, and storage methods. Therefore, a scientifically grounded approach is required for the harvesting and processing of medicinal raw materials. Chemically, alkaloids are classified into various groups, such as tropane, isoquinoline, purine, indole, and steroidal alkaloids, among others [2]. Each group possesses unique pharmacological properties and holds particular importance in medicine.

Alkaloid preservative medicinal plants. In medicine wide applicable alkaloids many medicinal from plants These include belladonna, yarrow, yarrow, ephedra, yarrow, yarrow, catharanthus, and yarrow. and other plants enters.

a) **Belladonna (Atropa belladonna L.)** - contains atropine, hyoscyamine and scopolamine such as tropane alkaloids They are spasm reducing and glands secretion reducer to the feature has.

b) **Hyoscyamus niger L.) is** also **a** tropane rich in alkaloids, their impact central and peripheral nerve to the system It depends on the tree. prepared preparations some in diseases the pain reduce and bronchi expansion for the purpose used. Bangidevona

c) **Datura (Datura stramonium L.)-** in the content alkaloids bronchial asthma and spasm with passing in cases applicable tools in preparation important raw material calculated.

d) Ephedra (Ephedra spp.)- in the composition ephedrine there is It is a breath. the ways expansion, blood pressure increase and some shock in cases is used.

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e) **Catharanthus (Catharanthus roseus)** in the content vinblastine and vincristine substances oncological diseases in treatment important importance has cell division weakens [3].

In medicine Application : Alkaloids in medicine importance very wide. They are different system and to members impact indicating medicine tools in creation For example, atropine eye in practice pupil expansion for, also for spasm against tool as Morphine is strong. pain leaver medicine as known surgery in practice and pain in syndromes Ephedrine is used. bronchi expander tool as breath contraction with passing in diseases Scopolamine and heart nausea and vomiting in cases useful to be Capsaicin content preparations external grease drugs as the pain reduce and blood rotation in improvement is used.

Indole alkaloids between some compounds to cancer against tools working in the release These alkaloids are used cell division control to do feature because of oncological in practice big importance has. With this together with alkaloids high activity them caution with requires application, because out of the norm out of the norm exceed gone dose poisonous to be possible [4].

Uzbekistan in the flora alkaloid plants. Uzbekistan natural flora alkaloid medicinal It is considered rich in plants. Local scientific in literature ephedra, savrinjon, afsonak, mingdevona, bangidevona, achicmiya, isiriq, isfarak and other plants separately record This plants study only medicinal importance has not, maybe pharmacognosy, phytochemistry and pharmaceutical technology It is also important for Uzbekistan. scientists by alkaloids separate extraction, identification, analysis and pharmacological features according to row research take. Also, local to raw materials based herbal remedies working exit medicine tools import reduce and people health in strengthening important direction . This is an alkaloid preservative. plants scientific basically cultivation and again work necessity strengthens.

Alkaloids safe application. Alkaloids strong biological active substance happened for them in medicine in use dosage, use method and the patient's general condition of course into account. The same alkaloid is obtained from a small in dose healer impact shows, high in dose poisonous to be possible. Therefore, alkaloid preparations only doctor recommendation with usage necessary. Medicinal from plants house under the circumstances Caution is also required when using it, because natural to be them safety does not mean. Alkaloids only chemical compound as not, maybe treatment in the process important biological tool. They are also valued as very strong impact shown for modern in the pharmacy clear requires dosing. For example, tropane alkaloids spasm reduces, some indole alkaloids tumor of cells growth in slowing down used [5]. Medicinal from plants alkaloids separate to take, their quality and quantitative analysis done increase pharmaceutical of control important from the stages. These processes are raw material the truth determination of the drug efficiency provision and poisoning the risk to reduce service Especially belladonna, yarrow, and yarrow. and itch such as plants with at work caution necessary, because their active substances are noticeable even in small quantities impact to show possible. Uzbekistan in the flora occurring alkaloid plants people also widely used in medicine used. But they scientific basically just use safe and effective result gives. Therefore, medicinal raw material collection, storage, recycling work and medicinal to the product in rotation expert on the recommendation action to do necessary.

Conclusion. Conclusion as in other words, medicinal plants in the content alkaloids modern medicine for important natural They are a source of pain. decongestant, spasmolytic, bronchial dilating, soothing and to cancer against to the effect has medicine tools in creation wide is used in Uzbekistan. in the flora common alkaloid preservative plants deep study, their raw material effective again work and medicine tools working exit health storage system for big importance has.

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Therefore, alkaloids about scientific research continue to hold and them practical to medicine implementation to grow current from tasks is one.

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