IN-DEPTH STUDY OF BIOLOGICALLY ACTIVE PROPERTIES OF REEDS AND THEIR MODERN USE IN THE BEAUTY AND HEALTH INDUSTRIES

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Abstract: Reeds are a perennial herbaceous plant that grows almost all over the world, playing an important role in the lives of many peoples. This article discusses the range of reeds, their beneficial and harmful properties, chemical composition, as well as methods of harvesting and extraction. Particular attention is paid to traditional and modern uses of reeds in various spheres of human activity. The article will be of interest to a wide range of readers interested in plant resources and their utilization.

Keywords: reeds, perennial plant, application, properties, chemical composition, procurement, extraction, traditions, innovations.

Introduction: Reed is a unique perennial herbaceous plant that grows almost all over the world, from tropical to temperate latitudes. For many centuries, reed has played an important role in the lives of many peoples, being used in a variety of areas - from construction and crafts to medicine and food production. Despite the apparent simplicity and ubiquity, this plant has very interesting properties and application prospects, both in traditional and innovative areas. Botanical characteristics and distribution. Reed (lat. Phragmites) belongs to the family Poaceae and has about 12 species growing on all continents except Antarctica. The most common species is Phragmites australis, commonly known as common or reed reed. This is a perennial herbaceous plant from 1 to 6 meters high, with dense bunches of stems and wide hollow leaves. Reed rhizomes are capable of growing and forming extensive thickets. Reeds prefer wet habitats such as lakes,

rivers, swamps and coastal areas. They can grow in both fresh and brackish water. In Russia, reeds are found almost everywhere, especially in the European part and Siberia. Extensive reed thickets are typical for such regions as the Black Sea region, the Trans-Volga region, the Far East and Primorye.

Traditional use. Reeds have played an important role in the lives of many peoples for centuries, finding wide application in a variety of areas:

Construction and crafts:

- Construction of houses, roofs, fences, partitions
- Production of mats, baskets, wicker furniture
- Production of paper, cardboard, packaging

Agriculture:

- Pet food (hay, bedding)
- Fertilizer for gardens and vegetable gardens
- Raw materials for the production of biofuels

Medicine:

- Treatment of various diseases (colds, stomach, skin)
- Production of dressings
- Production of medicines

Food industry:

- Use of young shoots in cooking
- Production of starch, syrups, alcoholic beverages
- Extraction of aromatic and coloring substances

In many regions of the world - from China and Egypt to North Africa and Latin America - reeds have traditionally been used to solve a wide range of household, industrial and cultural problems tasks.

Beneficial and harmful properties. Reed has a number of valuable properties that determine its versatile use:

Positive properties:

- High biomass and growth rate. Reed is one of the fastest growing plants in the world.
- Versatility. It can be used in almost all areas of economic activity.
- Environmental friendliness. Reed is a renewable raw material; its use does not harm the environment.
- Healing properties. It has anti-inflammatory, antimicrobial and wound-healing effects.
- Sorption properties. It can effectively purify water from contaminants.

Negative properties:

- Allergenicity. Reed pollen can cause allergic reactions in some people.

- Invasiveness. Rapid growth of rhizomes can lead to the displacement of other plant species.

- Flammability. The high cellulose content makes reed very fire hazardous.

- Low nutritional value. High fiber content makes it difficult for animals to digest reeds.

- Toxicity. Some species contain cyanogenic glycosides, which are hazardous to health.

Despite these disadvantages, proper and rational use of reeds can minimize its negative impact.

Chemical composition and bioactive components. Reeds, like other

Cellulose (base of plant cell wall)	
Hemicelluloses (polysaccharides associated with cellulose)	
Lignin (natural polymer that gives rigidity to stems)	
Ash substances (mineral compounds (silicon, potassium, calcium))	
Proteins (contain all essential amino acids)	
Microelements	

This chemical composition determines the diversity of its application in the food, medical, cosmetic and other industries.

Reed is harvested mainly in two ways:

1. Manual harvesting. A traditional method, widespread in rural areas and areas remote from cities. It is carried out manually, using knives, sickles or axes.

2. Mechanized harvesting. A more modern approach, used in large-scale production. Specialized machines are used - mowers, dumpers, presses, crushers.

The reed processing process includes the following stages:

- Drying. Cut stems are dried in the sun or in dryers to remove moisture.

- Crushing. Dried stems are crushed to the required size (chips, fiber, powder).

- Extraction. Valuable components are extracted from the crushed raw materials - essential oils, dyes, biologically active substances.

- Pressing. For the production of briquettes, slabs and other molded products.

Production waste (ash, dust) can also be used as fertilizers, sorbents, fillers and fuel.

Prospects and trends of use. In the modern world, interest in reeds as a renewable natural resource is steadily growing. In addition to traditional methods of its use, new innovative technologies are actively being developed and implemented:

1. Construction. Reeds are used to produce environmentally friendly building materials (panels, insulation, roofing).

2. Energy. Processing reed biomass into biofuel (pellets, briquettes, biogas).

3. Phytobioremediation. Using reeds to purify water and soil from pollution.

4. Medicine. Development of drugs based on bioactive substances of reeds.

5. Cosmetology. Using reed extracts in the production of natural cosmetics.

6. Textile industry. Obtaining fibers for the production of fabrics, carpets, paper.

7. Agriculture. Using reeds as feed, bedding, and a component of organic fertilizers.

Thus, reeds are a unique multifunctional plant in demand in many industries. Its rational and comprehensive use opens up broad prospects for the development of environmentally friendly technologies and closed production cycles.

Reed and its medicinal use for skin diseases. One of the traditional uses of reed is its use in folk medicine, including for the treatment of various skin diseases. Various parts of the plant - stems, leaves, roots - have healing properties due to their chemical composition.

The main medicinal properties of reed, applicable for skin diseases:

1. Anti-inflammatory action. Reed contains various phenolic compounds, flavonoids and tannins, which have a pronounced anti-inflammatory effect. This allows the use of reed to treat inflammatory skin diseases such as dermatitis, eczema, acne.

2. Antimicrobial activity. Reed exhibits antibacterial, antifungal and antiviral properties due to the presence of alkaloids, essential oils and other bioactive substances in its composition. This makes reed effective in the treatment of infectious skin pathologies. 3. Wound healing effect. Reed extracts stimulate skin regeneration processes, accelerate the healing of wounds, burns and ulcers. This is

due to the content of vitamins, microelements and other biologically active components in the plant.

4. Local anesthetic effect. Some types of reed contain alkaloids that have a local anesthetic effect. This allows the use of reed to relieve pain in skin diseases.

The main methods of using reed in the treatment of skin diseases:

1. External use:

- Infusions, decoctions, compresses from stems, leaves or roots of reed for treating affected areas of the skin.

- Ointments, creams, gels based on reed extracts for the local treatment of inflammation, wounds, eczema.

- Baths with the addition of a reed decoction for the treatment of skin diseases.

2. Internal use:

- Infusions, teas from crushed stems, leaves or roots of reeds for a general strengthening and anti-inflammatory effect.

- Biologically active supplements containing reed extracts for the complex treatment of skin pathologies.

For example, in traditional medicine of China and Japan, reeds have long been used to treat eczema, dermatitis, psoriasis, acne, fungal skin infections. External applications with reed extracts have an antipruritic, drying and healing effect. Internal use in the form of teas and infusions helps cleanse the body and has a general strengthening effect.

Modern research also confirms the effectiveness of using reeds in the complex treatment of various skin diseases. Due to its rich chemical composition and diverse biological properties, reeds are of great interest for the development of new safe and environmentally friendly means of external therapy of skin pathologies. Conclusion: Reed is one of the most widespread and popular plants in the world. For centuries, it has played an important role in the lives of many peoples, finding a variety of applications - from construction and crafts to medicine and the food industry. Despite its apparent simplicity, reed has a unique chemical composition and valuable properties, which makes it a promising raw material for a modern "green" economy. In recent years, interest in this plant has increased significantly, opening up new opportunities for its comprehensive and rational use.

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