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A Review on Extraction of Herbal Drug and Technology

Mr. Jagtap Sharvil Laxman[1] , Mr.Khan.Z K[2]

Final year student, LNBCIOP, Raigaon, Satara
Principal, LNBCIOP, Raigaon, Satara

ABSTRACT :-

Since they are thought to be safer and to have less negative effects than synthetic ones, natural therapies are more widely accepted. Worldwide demand for herbal formulations is rising. This study examines the creation and assessment of a polyherbal cream that contains neem (Azadirachita indica), aloe (Aloe Barbadenis), and karanj (Pongamiapinnata) hydro-alcoholic extract powder. We suggest using neem leaf (Azadirachitaindica), aloe (Aloe barbadenis), and karanj (pongamiapinnata) extract, despite the fact that there are many topical herbal formulations for acne out there. Good anti-microbial, anti-acne, anti-oxidant, and anti-inflammatory efficacy against wound healing has been described for the plant in the literature.

In this study, an extract of natural products like aloe neemand was used to make and assess a herbal cosmetic cream.Naturally occurring goods include.

Keyword :- neem, karanj, aloe vera, cosmetic, herbal, anti oxidant, anti inflammatory.

INTRODUCTION :-

The main problem with modern medication is that its adverse effects might endanger patients' lives. Like synthetic drugs, herbal drugs also have a range of side effects. Therefore, assessing their clinical safety and effectiveness is crucial.In recent years, there has been a growing appreciation for the potential of natural products, herbal remedies, and traditional medicines to prevent and treat human ailments.

A product with nutritional, therapeutic, or preventative qualities is referred to as medicine, whereas a preparation made from plants or botanicals is called herbal. Therefore, substances derived from plants that have nutritional, therapeutic, or preventative qualities are referred to as "herbal medicine." The first known medical treatments are herbal ones. All societies have used herbs throughout history, but India is home to some of the oldest, richest, and most varied cultures that still practice the use of medicinal plants.Currently, there is an exponential increase in the market for herbal goods worldwide, and large pharmaceutical corporations are actively researching plant materials for possible medical benefits.Herbal drug technology is used to turn plant resources into medications; in this process, it's critical to maintain quality control and standardization while properly integrating traditional knowledge and contemporary scientific methods. Herbal formulations are now widely accepted as diabetes and arthritic treatment agents. Globally, there are liver disorders, colds and coughs, and memory improvement.

The way HMs are made and used in modern times also influences the results of their activities. The type of ailment to be treated, the administration method, the patient, culture, and even philosophical backgrounds all have a significant impact on the dose form of herbal medicines. Home remedies and traditional medicine clinics frequently make HMs from dried or fresh herbs that are then turned into poultices, decoctions, infusions, powders to apply topically to wounds, puddings, and other native drinks. Typically, conventional commercial HMs products come in the form of pills, capsules, tablets, granules, powders, creams, ointments, and so forth. By encouraging usage, the presentation of HMs in pharmaceutical dose forms is anticipated to improve compliance, correct dosing, and aesthetics.

DRUG PROFILE

Herbal Drugs

1 Aloe Vera

Aloe Vera Leaves **Aloe Vera Powder**

- **Synonym :-** Aloe barbadensis var. chinesis Haw
- **Plant Profile**
- **Kingdom**:- Plantae
- **Clade**:- Angiosperm
- **Clade**:- Monocots
- **Order**:- Asparagales
- **Family**:- Asphodelaceae
- **Subfamily**:- Asphodeloideae
- **Genus**:- Aloe
- **Species**:- A. Vera
- **Part used** :- Leaves
- **Common name** :- Chinese Aloe, Indian Aloe, True Aloe, First aid plant.
- **Colour:** Some types include white flecks on the upper and lower surface of the stems. The thick, fleshy leaves range in color from green to grey-green.
- **Shape:** The leaf features little white teeth and a serrated edge.
- **Dimensions:** 60-100cm (924-390 tall) on a short stemmed plant.
- **Other**: The yellow tubular corolla of each pendulous flower 2-3" (0.8-1.2") in length
- **Chemical Constituents:** Oxygen-containing compounds such as acetylated mannans, polymannans, antraquinone C-glycoside, and other anthraquinones like emodin and other lectins are found in aloe vera leaves and are being investigated for potential bioactivity.
- **Uses: Benefits for skin :-**Prevents Signs of Aging
- **Be Benefits for Health :-** Reduces Inflammation
- **Benefits for Hair :-** Promotes Hair Growth

2 Neem

Neem Leaves **Neem Powder**

Synonym: Azadirachitaindica Var. Minor Valenton
Drug Profile
Kingdom: Plantae
Clade: Angiosperm
Clade: Eudicots
Clade: Rosides
Order: Sapindales
Family: Meliaceae
Genus: Azadirachita
Species: A. Indicia
Parts Used: Leaves, Seed
Morphology
Morphological characters of leaves of azadirachitaindica
Colour: Evergreen plant
Size/shape: Leaves are 20-30cm (7.9-15.7in) long, with 20-31 medium to dark green leaflets about 3-8cm (1.2-3.1) long.
Odour: Characteristics
Test: Bitter
Texture: Smooth
Chemical Constituent:

Neem bark contain 14% tannin
It also contain Nimbin Nimbodin

Uses :- Antioxidants found in neem leaves are very helpful in lowering the synthesis of melanin. Since ancient times, neem has been utilized as a potent antiseptic. You may effectively manage your acne and eliminate blackheads and other skin pollutants by preparing a face pack with neem. It has been demonstrated that neem moisturizes hair and gives flat, lifeless hair shine and bounce. One of the best natural treatments for dandruff and lice removal is neem. These are widely accessible in rural markets and work well to remove deposits, plaque, and cavities in addition to effectively brightening teeth. Neem leaves have been used to treat a number of illnesses, including eye disorders and leprosy.

3 Karanj

Karanj Leaves **Karanj Powder**

Synonym: Millettiapinnata, Pongamiapinnata
Drug Profile
Kingdom: Plantae
Clade: Angiosperm
Clade: Eudicots
Clade: Rosids
Order: Fabales
Family: Fabaceae
Genus: Millettia
Species :M.Pinnata
Part used: leaves, Seed.

Morphology :
Morphological characters of leaves of Millettiapinnata
Colour : Green
Size/Shape: Shape and Size: a tree with a broad canopy that stretches equally throughout, reaching a height of 15 to 25 meters (50 to 80 feet). For brief intervals, it could be deciduous. Its smooth, grey-brown bark is 50–80 cm (20–30 in) in diameter and might be straight or crooked.
Odour: Characteristics
Taste: Bitter
Texture: Smooth
Uses: According to reports, P. pinnata leaf 70% ethanolic extract exhibits strong anti-inflammatory properties against various stages of inflammation.
According to reports, one plant that has anti-plasmodial activity against Plasmodium falciparum is P. pinnata.
Antimicrobial, antioxidant, and ulcer-preventive properties of plants

DIFFERENT EXTRACTION METHODS

The method of extracting medicinal plants involves using the proper solvent and following a conventional extraction procedure to separate the active plant material (such as alkaloids, flavonoids, trepans, saponin, steroids, and glycosides) from the inert or inactive material.

Common techniques for extracting herbal plants

1) Maceration: This is an extraction process in which a container is filled with coarsely powdered drug material (leaves, stem bark, or root bark), and menstruum (the solvent used to extract medicinal plants) is poured on top of the drug material until it is completely covered. After that, the container is sealed and left for a minimum of three days.

2) Digestion: This type of maceration involves using gentle heat to remove the material. When the temperature is somewhat high, it is utilized. The menstruum has a higher solvent efficiency.

3) Infusion: Infusion is a chemical procedure that employs volatile botanicals (dry flowers, herbs) that easily release their active components in alcohol, oil, or water.Usually, a boiling liquid is used in this process and then poured over the herbs.

4) Decoction: In this method, the plant material is dried first, then chopped to maximize solubility, and lastly boiled in water to extract the oils.

Isolation and purification techniques

1] General isolation techniques-

1.Plant matrices naturally are complex, containing a wide range of compounds that have various physical and chemical properties.

2.To obtain pure bioactive compound involves further separation and purification. Their separation remains a big challenge for the process of identification and characterization of pure bioactive natural product.

3.General isolation techniques of herbal plant extraction is maceration, infusion,percolation,digestiondecoction,soxletextractaion,

4.Microwave assist extraction, ultrasound extraction extraction(sonication),supercritical fluid extraction

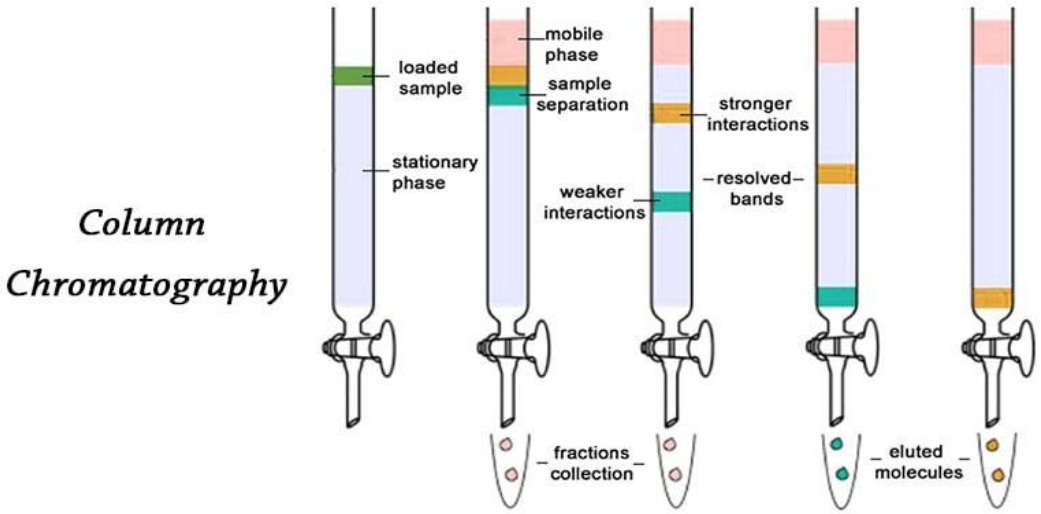
2) Chromatography in the column (CC)

I In the column chromatography method, acetone and ethanol are employed as the mobile phase, and the column is filled with the stationary phase, such as calcium carbonate or calcium phosphate.Due to external pressure or gravity, the mobile phase descends later in the column.

ii. When doing small-scale experiments, column chromatography is one of the most helpful techniques for the separation and purification of the solid and liquid.

iii. The movement of the mixture's constituent parts moves at various rates when the mobile phase and the mixture that has to be separated are introduced from the top of the column.

iv. When compared to components with higher adsorption and affinity for the stationary phase, those with lower affinity and adsorption move more quickly. Slow-moving components are eluted last, while fast-moving components are eliminated first.



3] Methods of purification for separated phytoconstituents:

i. The phytoconstituents are separated and purified using both chemical and physical methods.

ii. High-speed counter-current chromatography, thin layer chromatography, and column chromatography are recent techniques for isolating and purifying phytoconstituents. The chemical method consists of these chromatographic techniques.

1) Utilizing a solvent

Acid and the fundamental solvent technique

It is done in accordance with the varying acidity and alkalinity of each mixture component. Alkaloids and other organic water-insoluble alkaline components may react with inorganic acids to create salts, which can be distinguished from non-alkaline and water-insoluble constituents. Bases can salt acid components that include carboxyl or phenolic hydroxyl groups, allowing them to dissolve in water.

It is possible to saponify and dissolve components having lactone or lac-tam substructures in water, followed by their isolation from other components that are insoluble in water. The entire extract can be split into acidic, alkaline, and neutral components by dissolving it in lipophilic organic solvents (ethyl acetate is frequently employed) and extracting it with acid water and alkali water, respectively.

2) Method of precipitation

This method is based on the precipitation of certain components from the solution by adding certain reagents, which can decrease the solubility of certain components in the solution, or the creation of precipitation of certain phytochemicals by reacting with specific reagents. If the target components are necessary for the precipitation to develop, then the precipitation reaction needs to be reversible. However, the precipitation process can be irreversible if the components are nontarget because the precipitation created will be eliminated.

CONCLUSION:

Based on our research, we can say that blending aloe, neem, and karanj extracts in various ratios can have multifunctional effects on the skin, including anti-aging and anti-wrinkle properties. While it is currently unknown that a single plant extract can have its therapeutic properties increased, an extract's efficacy may be raised by combining several plant extracts.

Since the beginning of human history, people have used plants, herbs, and ethnobotanicals to promote health and treat illness all around the world. The foundation of contemporary medicine is derived from plants and other natural sources, which also play a significant role in the production of commercial medicinal compositions. Worldwide, plants are the source of about 25% of prescribed medications. Yet, in medicine, herbs are frequently utilized rather than pharmaceuticals. Herbal therapy is the preferred course of treatment for certain people. Herbs are utilized by some people as an additional form of treatment to traditional medications. However, traditional medicine—of which herbal medicine is an integral part—is frequently the only accessible or reasonably priced form of healthcare in underdeveloped nations. For whatever reason, consumers of herbal medicines should have confidence that the goods they purchase are safe and contain what they are meant to—that is, a specific plant or a specified quantity of a certain herbal component.

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