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Formulation and Evaluation of Polyherbal Cough Gutika

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Abstract:- Sore throat is characterized as discomfort in the throat or irritation. Coughing is a natural defense mechanism to help your lungs and throat get clearer. Coughing is the most widespread ailment that people have experienced for many years, worldwide. The body's defense mechanism is coughing. Gutika is an important part of the Ayurvedic pharmacy. There are many advantages to this dosage form, such as its ease of use, portability, flavor, ease of administration, and minimal preparation time. Herbs, including black catechu, saffron, cardamom seeds, the bark of baheda, black pepper, kebab chini, nutmeg, clove, and fennel, are carefully ground and dried and kept in a mortar and pestle. Also, take in the mortar and pestle, the Liqourice extracts, melted jaggery foundation, and soaked Liqourice root mixer. Prepare a gutika formulation mixer, make a uniformly sized gutika, and allow it to dry in a typical environment.

Keywords:- *Ayurvedic Formulation, Clove, Cough, Gutika, Licorice Roots, Sorethroats.*

I. INTRODUCTION

Gutika (Vati) is known as one of the inordinate Ayurvedic formulation that is prepared from various blends of herbs. This is known to treat the complicated of respiratory system. Gutika (Vati) is an effective Ayurvedic formulation that is able to maintain the balance of Vata and Kapha Doshas in the body.[1] The another name for “Cough” is “tussis”, the voluntary or involuntary turn which disappears the throat and breathing channel of external particles, microorganisms, irritations, fluids and secretion is nothing but cough.[2] A bacterial, viral, or fungal infection can result in inflammation and fluid in the lungs, which is known as a cough.It can induce fever and make breathing difficult. Your body produces a cough as a reaction to irritation of the throat or airways. An irritant causes your nerves to fire, sending a signal to your brain.[3] The majority of these pharmaceuticals on the market are made up of a synergistic mix of herbs that have a desired therapeutic outcome. Ayurveda medicines are anticipated to carry out a variety of pharmacological functions, at least to the point of treating symptoms, unlike contemporary medicines that have a single- drug, single target activity.[4]

“Gutika” could make balance between Vata and Kapha. For the preparation of Gutika following herbal drugs,black catechu, black paper, acacia, clove, liquorice, cardamom, kabab chini, fennel, bahed menthol, nutmeg ,saffron was used. These are made of one or more drugs of plant, animal origin. Traditionally Gutika is popularly used for the treatment of asthma, cough, and feverused for the treatment of asthma, cough, and fever.[5]

Liquorice is used as a demulcent for sore throats and an expectorant for bronchial catarrh and coughs Liqourice root is both an expectorant and demulcent, simultaneously soothing the airways while loosening and thinning mucous, easing congestion[6] Different forms of Liqourice may help treat sore throats and other upper respiratory disorders. Many people claim that drinking Liqourice root tea helps to reduce minor irritation and soothe sore throats.[7] liquorice is an ancient cough remedy with the scientific backing of Ayurveda. Having liquorice powder or sucking the sticks provide cough relief.[8]

Acacia catechu, It is also known as black catechu. Chemical constituents are tannins quercetin, and catechins. For the current study heart wood extract of plant that is khadira is used. Khadira is well known for its astringent and anti-cough property.[9] catechu is prescribed to relieve common colds, cough, diarrhoea, dysentery, bronchitis, menstrual disorders, gonorrhea, pulmonary affections, migraines and leprosy. Because of its catechins content, it is used as a laryngitis, diarrhoea and throat infection[10]

The cardamom may contribute its medicinal properties, including its ability to soothe throat irritation, reduce coughing, and provide respiratory support. The aromatic compounds in cardamom may help clear nasal passages and promote easier breathing. Additionally, cardamom adds a pleasant flavor and aroma to the lozenges.[11] Cardamom is use for common bronchitis ,cold, throat bronchitis and sore mouth , and tendency toward.[12]

Black pepper is also known to alleviate chest congestion and declog nose. Black pepper mixed with honey is a trusted tonic across Indian households as honey serves as a natural cough suppressant.[13] Black pepper have antioxidants, antiviral and antibacterial properties to fight against the infections .In Ayurveda it is known as Kapha virodhini (works against Phlegm). The decoction of Pepper is used for curing cough, diarrhea, lack of appetite and

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dyspepsia. There are reports of its pharmacological activities such as antioxidant, anticonvulsant, muscle relaxa, sedative, anti-inflammatory, antifungal, antibacterial, muscle relaxa etc. [14]

Kabab chini used as an expectorantit is beneficial in bronchitis and laryngitis. It possesses carminative, stimulant and expectorant activity which justifies its use in cough.

Cloves in traditional medicine they are known for their analgesic, antibacterial, antifungal, and anti-inflammatory properties. In traditional medicine, cloves are used to alleviate toothaches, aid digestion, and relieve respiratory symptoms such as cough and sore throat.[16] Cloves contain phenolic compounds such as gallic acid and eugenol, which are antibacterial and anti-inflammatory in nature. Packed with medicinal properties, cloves not individual relieve a sore throat but as well alleviate pain caused due to persistent coughing. It also has essential oil, which acts as a natural expectorant, clearing the respiratory channel.[17]

Fennel tea is a perfect remedy for cold, cough and flu as it is enriched with the goodness of antioxidants and vitamin C, which naturally combats infections and seasonal cold.Moreover, fennel seeds are also loaded with anti-inflammatory ,volatile oils and phytonutrients, which helps in preventing as well as cutting sinus congestion and cold.[18] Formulation of polyherbal cough, fennel may contribute its medicinal properties, including its ability to soothe throat irritation, reduce coughing, and provide respiratory. The anethole content in fennel seeds has been shown to have expectorant properties, which may help loosen mucus and facilitate its expulsion. Additionally, fennel adds a sweet and aromatic flavor [19]

Baheda The bark of T. bellirica is mildly diuretic and beneficial for anaemia and leucoderma.Fruits have anti-inflammatory, antihelmintic, expectorant, antipyretic, and antiemeticproperties that are beneficial for treating conditions like asthma and bronchitis, dropsy[20]

Menthol Menthol has a wide range of uses in pharmaceuticals, personal care products, and food and beverages. It is commonly used in cough drops, throat lozenges, and topical ointments for its cooling and soothing effects. Menthol is known for its analgesic, antipruritic, and decongestant properties. It is often used to relieve symptoms of coughs, sore throats, congestion, and minor skin irritations. In the formulation of herbal cough lozenges, menthol may contribute its cooling and soothing effects, helping to relieve throat irritation and suppress coughing. It provides a refreshing sensation and may help alleviate congestion. Menthol is often included in cough lozenges for its ability to provide immediate relief from cough and throat discomfort.[21]

Nutmeg the Nutmeg seeds have been used as spices in many countries because of their appealing pleasing aroma and sweet avor[22] Nutmeg oil is obtained from the seed of nutmeg fruit taking the ability to decrease stress, discomfort, menstrual cramps, heart syndromes, indigestion, blood pressure, cough, and bad breath due to the composite mechanical particles present in it.[23]

Saffron Active components of saffron such as safranal and crocin also have anti-inflammatory and antioxidant effects and so may have beneficial effects on asthma[24] Saffron is a plant. The dried stigmas (thread-like parts of the flower) are used to make saffron spice. Saffron is largely cultivated and harvested by hand. Outstanding to the amount of employment involved in harvesting, saffron is considered one of the world's most expensive spices. The stigmas are also used to make medicine.[25]

Gum Acacia Gum arabic is the gum that is radiated from positive plants, such as the Acacia senegal tree. It's a basis of nutritional strength that can liquify in water.Gum arabic inclines to make people feel full, so they might stop eating past than they otherwise would. This might lead to weight loss and reduced cholesterol levels. Gum arabic is used for tall cholesterol, diabetes and other situations, but there is no good scientific indication to provision these uses.[26]

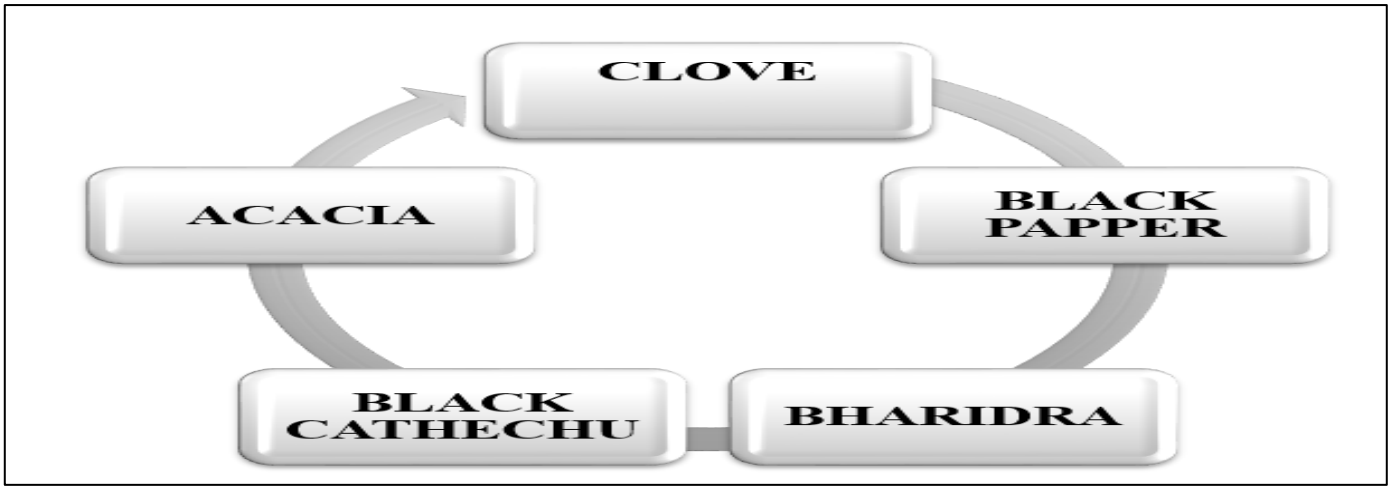

Fig 1: The Acacia senegal tree.

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II. GUTIKA MAIN INGREDIENT

➢ *Aim and Objective:*

- To create a herbal gutika to get rid of and manage Cough.
- The primary goal of the research is to create and assess a polyherbal gutika cure for sore throats and cough suppression.
- The gutika made from polyherbal extracts contains ingredients like Liqourice extract, acacia, gum, catechu, menthol, saffron, small cardamom seeds, fennel, and Liqourice root, which are traditionally used as cough suppressants. Other ingredients, like honey and jaggery, have nourishing and soothing impacts on the respiratory tract mucous membrane.
- It generates appetite, keeps the throat clean, and offers quick relief from coughing
- To study the pharmacological and therapeutic action of Gutika.
- To study the pharmacological and therapeutic action of each ingredient of Gutika.

III. METHODOLOGY AND PROCEDURE

Sufficiently weigh and grind all of the ingredients separately in a mortar and pestle until finely powdered, then pass through a sieve No. 12.

↓

In order to prepare the extraction of Liqourice, dissolve 50 grams of Liqourice powder in 200 milliliters of water in a beaker and set it aside for 24 hours. After filtering the extract via Whatsman paper, a clear Liqourice extract is produced.

↓

Small pieces of Liqourice root should be cut up and soaked in warm water to form a thick paste. Soak acacia gum in water to make Rashmi.

↓

A lamp was used to heat peppermints in a glass bottle so that they flowed.

↓

In a pestle and mortar, combine all the powdered ingredients. Then, add the necessary amount of licorice extracts, thick licorice root paste, gum water, and peppermint to the mixture.

↓

When the time comes to form it into pills, pills should be made, dried in the shade, and stored in a glass bottle.

Table 1: Formulation of Gutika-

Sr. No	Ingredient	Uses	Composition
1	Liqorice Root,powder.	Expectorant	25 gm
2	Acacia Gum	Binding Agent	11.65gm
3	Fennel	Aromatic.Flavoring anget	5.75 gm
4	Clove	Expectorant	5.75 gm
5	Black pepper	Expectorant,preservative.	29 gm
6	Mentha	Flavoring agent,decongenstant	0.55 gm
7	Cardamom	Aromatic, Flavoring agent.	5.25 gm
8	Kabab Chini	Expectorant	3 gm
9	Nutmag	Expectorant	1.25 gm
10	Kesar	Expectorant	0.75 gm
11	Black Catechu	Flavoring agent,Pain Reliver agent.	8.75 gm
12	Baheda	Laxative	5.75 gm

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IV. EVALUATION

➢ *Hardness:-*

Tablet hardness is the amount of force required to cruh a tablet in a diametric compressivetest. It represents the amount of resistance required to withstand mechanical shoc ksduring handling in the production, packing, and shipping processes. Every tablet's level of hardness was evaluated ind ependently using a Monsanto hardness tester. Then a measur e of the mean hardness of the remaining 10 pills was made.

Fig 2: Monsanto Hardness Tester. [1]

➢ *Friability*

Friability is a property of the compressed tablet to withstand cracking and breaking while being transported. The friability of ten tablets was computed. This instrument subjects the tablets to both abrasion and stress while rotating at a speed of 25 rpm within a plastic cylinder that reduces the tablets by 6 inches on each rotation it turns. A preweighed sample of tablets was placed into the friabilator, which was turned over 100 times.

Fig 3: Friability Tester. [2]

➢ *Disintegration Times:-*

The quantity of time taken for tablets or capsules to properly breakdown is referred to as the disintegration time. The amount of time shows the rate at which a solid (a tablet) disintegrates into a solution and how rapidly the medication is absorbed. Six tablets were placed in each compartment of the disintegration device, and the pills were heated to a temperature of 37°C. The tablets were designated to have passed the test when six of them succeeded in passing through the mesh within the apparatus in fifteen minutes.

Fig 4: Dissolution Tester. [3]

➢ *Determination of Total Ash*

Acrucible or silica dish that had previously been fired a nd tared was filled with a carefully measured 3 g of the subst ance. The materials had been distributed evenly and fired in a muffle furnace by gradually raising the temperature to a ra nge of 4500C to 6000C until no carbon-free ash is formed. The total ash value was determined using then powdered medicine material that had been dried using air.

➢ *Determination of Acid Insoluble Ash:-*

The previously mentioned ash was collected, burned with 25 millilitres of 1M hydrochloric acid for five minutes, and then filtered through filter paper free of ash. Any insoluble substance that remained on the filter paper was cleaned away with hot water and then burned to a uniform weight in a muffle furnace. Through the air-dried powdered pharmaceutical material, the amount of acid-insoluble ash was determined.

➢ *Determination of Water Soluble Ash:-*

Estimating the Water Soluble Ash 1 gram of ash from the entire ash experiment's insoluble material was collected on ashless filter paper, which was subsequently rinsed with hot water and burned in a muffle furnace for 15 minutes at a temperature not to exceed 4500 °C. This weight difference has been calculated due to the difference in the weights of ash and insoluble matter, which indicates the value. The powdered medicine material that has been dried in the air was employed to determine the percentage of water-insoluble ash.

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➢ *Determination of pH Value*

In a glass beaker, 100 milliliters of water were added for dissolving a sample of powder, about 5 grams in weight. For a full day, the beaker had been left at room temperature with aluminum foil covering it. After the supernatant solution had been poured into a different beaker, the pH level of the formulation was determined using a calibrated electronic pH metre.

Fig 5: Digital pH Meter. [4]

V. RESULT

Organoleptic Characteristics and Physicochemical Evaluation of Polyherbal Gutika.

Sr. No	Description	Result
1.	Colour	Dark Brwon
2.	Odour	characteristic
3.	Weight variation	1 gm
4.	Friability	0.35%
5.	Disintegration time	55 min
6.	PH	4.66
7.	Hardness	3.35
8.	Acide-insoluble ash value(% w/w)	4.5
9.	Water soluble ash value(% w/w)	9.5

VI. CONCLUSION

The research project aimed to develop a polyherbal gutika for the management and relief of cough and sore throat. By meticulously selecting and combining various herbs known for their cough-suppressant, expectorant, and soothing properties, the formulation was designed to address both the symptoms and underlying causes of respiratory discomfort.

The inclusion of ingredients such as licorice, black catechu, cardamom, black pepper, kalab chini, clove, fennel, baheda, menthol, nutmeg, saffron, and gum acacia provided a synergistic blend of medicinal properties, ranging from anti-inflammatory and expectorant to analgesic and antioxidant effects.Through a comprehensive review of each ingredient's pharmacological and therapeutic actions, the project aimed to validate the traditional knowledge and practices associated with Ayurvedic medicine.

The formulation not only aimed to alleviate symptoms but also to promote overall respiratory health by supporting immune function and reducing inflammation.

The development of Vati, with its primary ingredient being the polyherbal gutika, opens up avenues for further research into natural remedies for respiratory ailments.

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