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FORMULATION AND EVALUATION OF ANTI-FUNGAL POWDER USING HERBAL PRODUCT

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ABSTRACT :

The significance of the show consider was to define and assess antifungal powder to allow fungicidal impact. The powder was arranged by utilizing the home grown fixings like Datura, Garlic, Cinnamon and Lemongrass. The home grown fixings are utilized as excipients and powder powder was utilized as as a base. The powder was arranged by homogeneous blending of all the excipients. Powder was assessed for distinctive parameters like, organoleptic properties, powder stream properties (tapped thickness, bulk thickness, PH test, point of rest, Hausner's proportion and carr's file), dampness substance test or hygroscopy, skin irritancy test, and soundness test. Powder fixings appeared critical comes about in assessment parameters. The utilize of plants for treating infections is as ancient as the human species. Therapeutic plants have been a major source of helpful specialists for easing and remedy of infections. Based on the comes about, it is proposed that the item is securely steady at room temperature.

Keywords: Antifungal Powder, Herbal ingredients, Evaluation Parameters, Medicinal Plants, Therapeutic Agents.

INTRODUTION:

Antifungal Powder: Antifungal powder treats contagious or yeast diseases in your skin.
Fungal skin contaminations can be humiliating and awkward. With India's hot muggy climate, we are all more inclined to such conditions. Antifungal powder is a hassle-free cure for the issue and offers you moment alleviation from the itchiness and security against assist spread of the infection5.
Topical antifungal cures come in different shapes – as gels, treatments, creams, showers, shampoos, as well as in the shape of tidying powders. Depending on the aiming utilize, they may be connected straightforwardly to your hair, nails, skin, etc. Antifungal powders, like other antifungal cures, are outlined to end the development of organism and to avoid it from flourishing
Treatment of topical fungal infections hasseveral advantages including, targeting the site of infection, reduction of the risk of systemic1
side effects, enhancement of the efficacy of treatment and high patient compliance..
Antifungal Movement: The greatest antifungal movement of methanol extricate was found to be dynamic in clears out of Datura metel against Sclerotinia sclerotiorum with an hindrance length of 30 mm and restraint length of 9 mm against Rhizoctonia solani as watched but no impact against Fusarium oxysporum8

Advantage of Antifungal Powder

1. Treats fungal or yeast infections in your skin.
2. Soothing the irritated skin, reducing, and eliminating rashes, preventing onset of any recurrence, and absorbing excess perspiration caused due to heat.
3. Easily available.

Herbal Products:

Herbal Products made from botanicals, or plants that are used to treat diseases or to maintain health are called herbal products, botanical products, or Phytomedicines.

Herbal items are solutions determined from plants. They are utilized as supplements to move forward wellbeing and well being, and may be utilized for other helpful purposes. Home grown items are accessible as tablets, capsules, powders, extricates, teas and so on. Plant-based items utilized to treat infections or to keep up wellbeing, are called home grown items, botanical items, or phytomedicines. A item made from plant sources and utilized as it were for inside utilize is called an home grown items12.

Herbal items come in all shapes. They may be dried, chopped, powdered, or in capsule or fluid formAn herb is a plant or plant portion utilized for its fragrance, flavor, or restorative properties. They are sold as tablets, capsules, powders, teas, extricates, and new or dried plants. Individuals utilize home grown items to attempt to keep up or move forward their wellbeing.

A lot of work has been done on allelopathic plant extracts for their antifungal properties as natural alternatives for plant fungal disease control9.

LITERATURE REVIEW

REVIEW OF ARTICLE	ABSRACT
1. Tiwari Nishant, Gehlot Suman, Khare Nripen Prakash and Shrivastava Satyaendra **Year 2023** **FORMULATION AND EVALUATION OF ANTIFUNGAL POWDER** **WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL SCIENCES** **SJIF Impact Factor 7.632** **Volume 12, Issue 5, 1738-1745**	The purpose of the present study was to formulate and evaluate antifungal powder to give fungicidal or fungistatic effect. The powder was prepared by using the API (clotrimazole), chemicals like menthol, zinc oxide, boric acid and salicylic acid were utilized as excipients and talc powder was utilized as a base. The powder was prepared by homogeneous mixing of all the excipients. Powder was evaluated for different parameters like, organoleptic properties, powder flow properties (tapped density, bulk density, angle of repose, Hausner's ratio and carr's index), moisture content test or hygroscopy, skin irritancy test, and stability test. Powder ingredients showed significant results in evaluation parameters. Based on the results, it is suggested that the product is safely stable at room temperature1.
2. Arvind Kumar, Rakesh Patel **Year 2022** **Formulation and Evaluation of In-vitro Antifungal Activity of Lemongrass and Citronella Oil against Selected Fungal Skin Infections** **School of Pharmacy, Dr. A.P.J. Abdul Kalam University, Indore, Madhya Pradesh, India**	The essential oil collected from Cymbopogon flexuosus (Lemongrass) and Cymbopogon winterianus (Citronella) exhibited strong inhibition against all the selected fungi, evaluated in this study. Formulation of lemongrass and basil exhibited especially strong synergistic inhibition against Trichophyton tonsurons and Microsporum canis. In conclusion, we suggest the formulation of lemongrass and basil (BL-1) essential oils for the treatment of Trichophyton and Microsporum species, especially T. tonsurons and M. canis. This spreaded to many regions and parts of the world in recent decades and may reduce the efficacious dose of formulations of essential oils and thus minimizes the side-effects of synthetic antifungal agents. The therapeutic use of essential oils may also provide a solution for the rapid development of fungal resistance that is problematic with the currently available common antifungal therapeutics2.
3. Salman Shahid, Tahir Naqqash,Kashif Aslam,Muhammad Kashif Hanif,Muther Mansoor Qaisrani and Ghulam Shabir **Year 2021** **Antimicrobial and Antifungal Effect of Ginger (Zingiber officinale), Green Tea (Camellia sinensis) And Neem (Azadirachta indica) On Plant Pathogens** **American Journal of Biomedical Science & Research**	Plants have been the source of food, medicines and many other daily life products since primitive times. Bacterial and fungal pathogenic attack reduces crop yield. Phytochemicals as biocides have ability to kill microbes. In this study, extract of Zingiber officinale rhizomes (Ginger), leaves of Azadirachta indica (Neem) and Camellia sinensis (Green tea) were applied on bacterial (Xanthomonas campestris) and fungal (Alternaria alternata) pathogens to check their antibacterial and antifungal activity, respectively. Ethanolic and aqueous extracts were prepared which showed different efficiency. Bacterial pathogen was grown on "Nutrient agar (NA) media" while fungal pathogen was grown on "Potato dextrose agar (PDA) media". Antibacterial and antifungal potential of plant extracts were observed at two different

	stages (at the time of inoculation and after growth of pathogen on media). The inhibition zone was assessed by "agar-well diffusion method" and MIC was measured by "micro-broth dilution method". Ethanolic extract of green tea showed highest inhibition zone for Xanthomonas compestris while aqueous extract showed lowest inhibition zone. Moreover, highest antifungal activity was also shown by aqueous extract of green tea leaves. However, aqueous extract of ginger rhizome showed no antifungal activity. The lowest antibacterial and antifungal activity was showed by the ethanolic and aqueous extract of neem, respectively. MIC of aqueous extract of ginger rhizome was highest for fungal pathogen; however, the lowest MIC value for Alternaria alternata was due to ethanolic extract of neem leaves. This study gave us basis for making disease control strategies for pathogens of economically important crops such as X. campestris and A. alternata. Our findings will also help the management for effective disease control implementations[3].
4. Rosemary MATIAS; Valtecir FERNANDES; Bianca Obes CORRÊA; Silvia Rahe PEREIRA; Ademir Kleber Morbeck de OLIVEIRA **Year 2020** **PHYTOCHEMISTRY AND ANTIFUNGAL POTENTIAL OF Datura inoxia Mill. ON SOIL PHYTOPATHOGEN CONTROL** **Bioscience Journal Uberlândia, v. 36, n. 3, p. 691-701, May/June 2020**	The application of chemical pesticides for the control of fungal diseases results in impacts on the environment and human health. The use of vegetal extracts with antifungal properties for the proper management of crops becomes a viable alternative, mainly for organic and family farming. The objective of this study was to carry out the phytochemical evaluation of Datura inoxia, evaluating its antifungal potential against the mycelial growth of Fusarium solani and Sclerotinia sclerotiorum. The extracts, aqueous and ethanolic, obtained from the leaves of the plant collected in areas of the municipality of Campo Grande, Mato Grosso do Sul, were submitted to phytochemical prospecting and quantification of flavonoids and total phenols. It was evaluated its antifungal activity at concentrations of 800, 1200, 1600, 2000, and 2400 µg 100 mL-1. Each concentration was separately incorporated into BDA agar, poured into Petri dishes, and inoculated with the mycelial disc of the fungus. The diameters of the colonies were measured daily. Two solutions were prepared as control, one containing the solvent added to PDA medium (ethanol solution), and another with only PDA medium (without D. inoxia extract, control). In both extracts were found the same diversity of secondary metabolites (nine classes). The ethanolic extract, a solvent of lower polarity than water, was more efficient in the extraction of these constituents. Alkaloids and phenolic compounds were the most frequent compounds (100%). In relation to antifungal activity, the ethanolic extract provided 100% inhibition of mycelial growth of Sclerotinia sclerotitorum in all concentrations, relative to the control. On the other hand, the growth of Fusarium solani was only negatively affected at the highest concentrations of 800 and 1200 µmL-1 100 mL-1 . The antifungal potential of Datura inoxia was probably related to the abundance of alkaloids and phenolic compounds in its chemical constitution that negatively effects the development of the vegetative mycelium[4].
5. Gaber El-Saber Batiha 1,2,Amany Magdy Beshbishy 1,Lamiaa G. Wasef 2, Yaser H. A. Elewa 3,4, Ahmed A. Al-Sagan 5 , Mohamed E. Abd El-Hack 6 , Ayman E. Taha 7 , Yasmina M. Abd-Elhakim 8 and Hari Prasad Devkota 9 **Year 2020** **Chemical Constituents and Pharmacological Activities of Garlic (Allium sativum L.)** **Nutrients 2020, 12, 872; doi:10.3390/nu12030872**	Medicinal plants have been used from ancient times for human healthcare as in the form of traditional medicines, spices, and other food components. Garlic (Allium sativum L.) is an aromatic herbaceous plant that is consumed worldwide as food and traditional remedy for various diseases. It has been reported to possess several biological properties including anticarcinogenic, antioxidant, antidiabetic, renoprotective, anti-atherosclerotic, antibacterial, antifungal, and antihypertensive activities in traditional medicines. A. sativum is rich in several sulfur-containing phytoconstituents such as alliin, allicin, ajoenes, vinyldithiins, and flavonoids such as quercetin. Extracts and isolated compounds of A. sativum have been evaluated for various biological activities including antibacterial, antiviral, antifungal, antiprotozoal, antioxidant, anti-inflammatory, and anticancer activities among others. This review examines the phytochemical composition, pharmacokinetics, and pharmacological activities of A. sativum extracts as well as its main active constituent, allicin[5].
6. Emosairue Catherine Orevaoghene, Enwa Felix Oghenemaro*, Anie Clement Oliseloke and Michael Oghenejobo **Year 2019** **EVALUATION OF THE ANTIFUNGAL ACTIVITY, OF Datura metel LINN ETHANOLIC LEAF EXTRACT ON Candida albicans** **FUW Trends in Science & Technology Journal, www.ftstjournal.com** **e-ISSN: 24085162; p-ISSN: 20485170; December, 2019: Vol. 4 No. 3 pp. 721 – 725**	The antimicrobial and antioxidant activity of Datura metel has been studied by different researchers in the north, west and east of Nigeria except the south-south precisely Delta State. The study was carried out to evaluate the antifungal activity of the crude ethanolic extract of the leaves of Datura metel Linn against Candida albicans. The agar well diffusion method was used in the study and all determinations were done in triplicates. A modified agar dilution method was used in the determination of Minimum inhibitory concentration (MIC). The treatments used were 50, 100 and 150 mg/ml of plant extract for the Antifungal susceptibility test (AST) and 20–200 mg/ml of plant extract for the MIC determination. The antifungal activity of the plant extract was compared with those of Clotrimazole, a standard antifungal agent. The results of the antifungal screening revealed that the plant was most sensitive at 150 mg/ml with inhibition zones of 11–14 mm and least sensitive at 50 mg/ml with inhibition zones of 10-11 mm. Clotrimazole was significantly ($P<0.05$) more effective than the plant extract in inhibiting the yeast. The MIC and Minimum fungicidal concentration (MFC) were at 20 and 160 mgml, respectively. The results revealed that the plant extract if formulated to avoid certain metabolic pathways that enhances resistance to antimicrobial agents can be considered as a potential antifungal agent against C. albicans[6].

7. Jolanta Kowalska & Józef Tyburski & Joanna Krzymińska & Magdalena Jakubowska **Year 2019** **Cinnamon powder: an in vitro and in vivo evaluation of antifungal and plant growth promoting activity** **Eur J Plant Pathol (2020) 156:237–243**	In this study, the effects of organic powder of Cinnamomum zeylanicum on the development of Botrytis cinerea and its influence on tomato plants were evaluated. The cinnamon bark powder and its water suspensions and filtrates were used at 0.5 and 1% rates. After 6 days of the start of an in vitro experiment the mycelium growth was inhibited by both 0.5 and 1% cinnamon water filtrates - to a greater degree in the case of the higher concentration, by 54.4 and 81.4%, respectively. Spraying with cinnamon water filtrates positively influenced the growth of plants both in the greenhouse and the field. Antifungal activity of cinnamon was proved in the greenhouse tests - the disease symptoms of grey mould on infected tomato plants decreased. The fresh weight of non-inoculated tomato plants treated with cinnamon filtrates was significantly higher than control plants (17.17 g compared to 12.83 g) showing a stimulating effect of cinnamon filtrates. In the case of inoculated plants due to treatment, their weight increased from 7.83 to 10.50 g. In the field experiment, tomato plants sprayed six times with cinnamon were better developed than the control plants. The most significant effect was observed for Hamlet variety - the mean number of leaves was higher by 27.3% and the mean number of branches by 19.7% compared to the untreated control plants. Thus it was proved that cinnamon powder has potential to inhibit B. cinerea growth and also has a stimulating effect for tomato plants[7].
8. Jubair Ahmed1 | Esra Altun2 | Mehmet O. Aydogdu2 | Oguzhan Gunduz2 | Laxmi Kerai3 | Guogang Ren4 | Mohan Edirisinghe1 **Year 2019** **Anti-fungal bandages containing cinnamon extract** **International Wound Journal**	Cinnamon-containing polycaprolactone (PCL) bandages were produced by pressurised gyration and their anti-fungal activities against Candida albicans were investigated. It was found that by preparing and spinning polymer solutions of cinnamon with PCL, fibres capable of inhibiting fungal growth could be produced, as observed in disk diffusion tests for anti-fungal susceptibility. Fascinatingly, compared with raw cinnamon powder, the novel cinnamon-loaded fibres had outstanding long-term activity. The results presented here are very promising and may indeed accelerate a new era of using completely natural materials in biomedical applications, especially in wound healing[8].
9. Cristian Mauricio Barreto Pinillaa, Roberta Cruz Silveira Thysb, Adriano Brandellia **Year 2019** **Antifungal properties of phosphatidylcholine-oleic acid liposomes T encapsulating garlic against environmental fungal in wheat bread** **International Journal of Food Microbiology** **293 (2019) 72–78**	Liposomes have gained great interest in the food and pharmaceutical industry as colloidal carriers of bioactive compounds. In this work, liposomes of phosphatidylcholine (PC) and oleic acid (OA) encapsulating garlic extract (GE) were developed to determine its aptitude as antifungal agent in wheat bread. The influence of GE on the properties of liposomes were followed by determination of size, Zeta potential, Fourier transform infrared patterns (FTIR), morphology, differential scanning calorimetry (DSC) and thermogravimetric (TGA) techniques. The produced PC-OA-GE liposomes showed spherical morphology with narrow size distribution, entrapment efficiency of 79.7% and zeta potential of −27.9 mV. In vitro antifungal test showed noticeable inhibitory activities for free and encapsulated GE against selected fungal strains. TGA analysis revealed that the presence of OA and GE in the formulation retards the liposomal thermal decomposition, as compared with the pure PC liposomes and the DSC enthalpy and main transition temperature variation in PC-OA-GE liposomes suggested a strong heat-induced rigidifying effect that could be attributed to the presence of garlic polysaccharides in the liposome surface, observed by FTIR. In the in situ test, the bread formulations with free or liposome-encapsulated GE (0.65 mL/100 g of dough) were microbiologically more stable as compared with the controls, showing mold inhibition for five days. Therefore, liposomes formulated with OA and GE showed potential as natural antifungal agent[9].
10. Muhammad Ibrahim,a Shanza Siddique,a Kanwal Rehman,b Muhammad Husnain,a Ajaz Hussain,c Muhammad Sajid Hamid Akash,d,* & Farooq Azamb **Year 2018** **Comprehensive Analysis of Phytochemical Constituents and Ethnopharmacological Investigation of Genus Datura** **Critical Reviews™ in Eukaryotic Gene Expression, 28(3):223–283 (2018)**	The genus Datura comprises wild shrub plants that belong to the Solanaceae family. Naturally, they possess both medicinal and poisonous properties due to the presence of many biologically active phytochemical constituents. Traditionally, Datura had been used for mystic and religious purposes, as a natural drug to treat asthma, pain, gout, boils, abscesses, and wounds, and as psychoactive infusions and fumitories. Different Datura species exhibit diverse ethnopharmacological activities against different diseases, and many ancient and traditional cultures have used various forms of Datura to treat ailments and to prevent many diseases. In this article, we comprehensively summarize various phytochemical constituents isolated from Datura, their pharmacological properties against different diseases, parts of the plants used as traditional therapeutic agents, regions where they are located, and botanical descriptions of different Datura species. The ethnopharmacological properties of Datura may provide new insights for discovery and development of natural drugs. Further research is needed for the investigation of mechanisms of action and to develop safety profiles of the phytochemical constituents isolated from Datura species[10].

AIM AND OBJECTIVE OF WORK

Aim : Formulation and Evaluation of Antifungal Powder using Herbal Products.

Objectives :

1) Antifungals Powders kill or stop the growth of fungi that cause infections in our skin.
2) Treatment length varies depending on the fungal infection and some fungal skin infections like ringworm clear up in a few weeks.
3) Better Stability and Patient Compliance
4) By keeping the skin dry and reducing moisture, these powders can inhibit the growth of fungi.
5) Provide relief from itching, discomfort, and irritation.
6) Antifungal powder is effective in keeping the skin dry due to its hygroscopic properties, which is desir- able when treating tinea pedis.

NEED OF WORK

1. Uses of herbal product in our daily life is very important because they are chemical free.
2. The herbal product are easily available without any GP Prescription.
3. They are the product that selectively eliminates fungal pathogens from a host with minimal toxicity to the host.
4. We can use this powder for the full amount of time recommended on the package or by your doctor or health care professional even if you begin to feel better.

CHALLENGES AND APPROCHES

1. It is a prolonged therapy.
2. If heated at an extensive temperature, the powder may be settled down and it is difficult to remove the residues of powder.
3. If exposed to the room temperature it cause fungus to the prepared formulation.
4. The powder when measured in an increased quantity, the powder formed may be sticky.
5. It may form caking.
6. One of the major challenges in developing antifungal drugs lies in the similarities shared between fungi and their host.

OUTCOME

You get immediate relief from symptoms like itching and redness of the skin. A good quality herbal anti-fungal powder is quite effective in treating and preventing fungal infections like jock itch, ring-worm, fungal sweat rash, yeast infection and more.Several herbs can be beneficial in treating skin conditions such as redness, rashes, infections, and itching. In addition, they help to keep the skin soft and supple. Furthermore, they promote good health and are beneficial to skin. There are significant benefits and no negative effects.

MATERIALS AND METHOD

A. Selected ingredients for formulation and evaluation of antifungal powder:-

1) Datura
2) Garlic
3) Cinnamon
4) Lemongrass

1. Datura

Synonym:- Thorn apple, Moon blossom, Hell's chimes, Blessed messengers trumpet, stinkweed.
Biological source:- The Organic sources are dried takes off and blooming tops of Datura metal and D.metal var.fastuosa Safford.It ought to contain not less than 0.20 percent of add up to alkaloids of Datura,calculated as /-hyoscyamine.
Family:- Solanaceae.
Chemical Constituents:- Scopolamine, Daturadiol, Fraxetin , Tropane alkaloid.
Datura herb contains upto 0.5 percent of add up to alkaloids,among which hyoscine (scopolamine) is the primary alkaloid,while /-hyoscyamine (scopoline) and atropine are show in exceptionally less amounts (see belladonna herb).
Hyoscine (C17 H 21 O4 N) is an ester of tropic corrosive and scopine. It is the central alkaloid of Datura, Scopolia and Duboisia species. The event of hyoscine is limited as it were to solanaceae family.
Chemical tests (Vitali- Morin response) :-
➢ The tropane alkaloid is treated with raging nitric acid,followed by vanishing to dryness and expansion of methanolic potassium hydroxide arrangement to an acetone arrangement of nitrated buildup. Violet coloration takes put due to tropane derivative.
➢ On expansion of silver nitrate arrangement to arrangement of hyoscine hydrobromide,yellowish white accelerate is formed,which is insoluble in nitric acid,but solvent in weaken ammonia

Uses:-
➢ Datura herb and its fundamental alkaloid hyoscine are parasympatholytic with anticholinergic and central apprehensive framework depressant effects.The sedate is utilized in cerebral excitement.
➢ Along with morphine, it is utilized as preoperative medication.
➢ It is too utilized in treatment of asthma and hack.

2. GARLIC

Synonym: Lasun,Allium,Garlic
Biological source: This consists of bulbs of the plant known as Allium sativum Linn.It contains not less than 0.2 percent of allin on dried basis.
Family: Liliaceae
Chemical Constituents:
➢ Garlic bulbs contain 29 percent of carbohydrates, about 56 percent of proteins(albumin),0.1 percent of fat, mucilage, and 0.06 to 0.1 percent of volatile oil.It also contains phosphorus, iron and copper.
➢ Volatile oil of the drug is the chief active constituents, and contains allyl propyl disulphide , diallyl disulphide alliin and allicin. Alliin by action of enzyme allinlyase is converted into allicin.
➢ Garlic oil is yellow in color and has specific gravity of 1.046.It is optically inactive.
➢Garlic contains diverse bioactive compounds, such as allicin, alliin, diallyl sulfide, diallyl disulfide, diallyl trisulfide, ajoene, and S-allyl cysteine.
Storage:- It undergoes degradation and hence,should be carefully stored at zero degree centrigrade and 65 percent of relative humidity.

Uses:-
➢ Garlic is used as carminative,aphrodisiac, expectorant, stimulant and disinfectant in the treatment of pulmonary conditions.
➢ It is largely used as condiment. Oil of garlic is used as anthelmintic and rubefacient.
➢ Garlic oil is useful in high blood pressure and also has strong anti-oxidant effect.
➢ It also has strong anti-microbial and anti-fungal activities.

3. CINNAMON

Synonym: cinnamon bark, kalmi-dalchini, Ceylon cinnamon.
Biological source: Cinnamon consists of dried inner bark, of the shoot of coopiced trees Cinnamomum zeylanicum Nees.It should not less than 1.0 per cent of volatile oil.
Family: Lauraceae.
Chemical constituents:
•0.5-1.0% of volatile oil (active constituent, light yellow in fresh-- changes to red on storage)
•1.2% of tannis, mucilage, calcium oxalate, starch and mannitol (a sweet substance)
•cinnamon oil contains 60-70% of cinnamaldehyde, 5-10% eugenol, benzaldehyde, cuminaldehyde and other phellandrane, pinene, cymene, caryophyllene, etc.

➤Cinnamon (Cinnamomum verum), also called Ceylon cinnamon, is a bushy evergreen tree of the laurel family (Lauraceae) and the spice derived from its bark. The spice consists of the dried inner bark and has a delicately fragrant aroma and a warm sweet flavor.
Uses –
Bark is used as a carminative, stomachic and mild astringent. It is also used as a flavouring agent, stimulant, an aromatic, and antiseptic. Commercially, it is used as a spice and condiment, and also in the preparation of candy, dentrifices and perfumes.

4. LEMONGRASS

Synonym: barbed wire grass, silky heads, oily heads, Cochin grass, Malabar grass, citronella grass or fever grass.
Biological source: Lemongrass oil is obtained from Cymbopogon flexuosus stapf.
Family: Poaceae
Chemical constituents: Citral, citronellal, geraniol, nerol.

➤It is tropical perennial aromatic grass with stiff strap like leaves emerged from short branched rhizomes.
➤It is grow in approximately 1 to 2 m height with 0.5 cm to 1 cm wide
➤It is rarely producing flowers.
➤Mosquito repellent
Uses

It is used as a flavouring agent and in perfumery. It is employed as a source of citral from which B-ionine is prepared.
B-ionine is starting material for the synthesis of vitamin A.
Kerala State Drugs and Pharmaceutical Co. has commissioned vitamin A plant at Alleppey

PHYTOCHEMICAL SCREENING:-

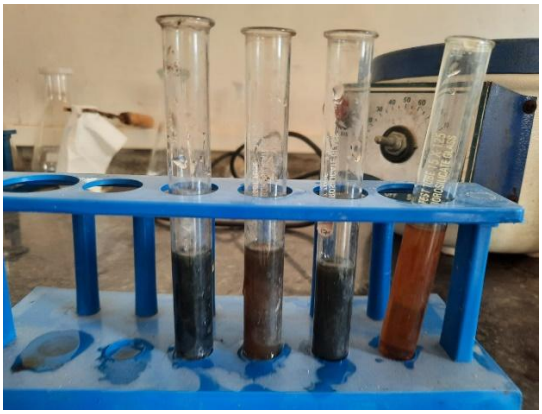
TEST	OBSERVATION	INRFERENCE
1. TEST FOR FLAVONOIDS:- To extract add sml ethanol, few drops Conc. Hel & asg magnesium	1.Datura:- Orange colour is present / observed	test is present
	2.Garlic:- Orange colour is present / observed	test is present
	3.Cinnamon:- Orange colour is present / observed	test is present
	4.Lemongrass:- Orange colour is present / observed	test is present
2. TEST FOR ALKALOIDS:- To 2-3 ml filtrate with few chrops Dragendraft solution	1.Datura:- Orangish brown ppt observed	test is present
	2.Garlic:- Orangish brown ppt observed	test is present
	3.Cinnamon:- Orangish brown ppt observed	test is present
	4.Lemongrass:- Orangish brown ppt observed	test is present
3. TEST FOR GLYCOSIDES:- To 2ml extract, add glacial acetic acid. one drop feclea conc. H_2 804.	1.Datura:- Reddish brown colour is present/ Observed	test is present
	2.Garlic:- Reddish brown colour is present/ Observed	test is present
	3.Cinnamon:- Reddish brown colour is present/ Observed	test is present
	4.Lemongrass:- Reddish brown colour is present/ Observed	test is present
4. TEST FOR TANNINS:- 2ml extract, add few drops of fecla	1.Datura:- Black colour is Observed / Present	test is present
	2.Garlic:-Do not produce	test is absent
	3.Cinnamon:- Black colour is Observed / Present	test is present
	4.Lemongrss:- Black colour is Observed / Present	test is present

1. TEST FOR FLAVONOIDS:-

2. TEST FOR ALKALOIDS:-

3. TEST FOR GLYCOSIDES:-

4. TEST FOR TANNINS:-



METHOD OF PREPARATION

1. Garlic bulbs, cinnamon bark sticks and leaves of lemongrass and Datura were collected.
2. Clean the herbal ingredients twice using distilled water
3. After this herbal ingredients are ground to fine powder using a mechanical grinder
4. Dissolve 20gm each plant powder in 100ml of distilled water in sterile mortor pestle
5. Then filter the preparation using whatman No. 1 filter paper and then collect it in a 250 ml glass flask
6. Flask were then plugged with cotton & kept in refrigerator at 4°c for 24hr.
7. Then filtered & kept in a hot air oven for 5-7 days at 35°c +2°c to completely evaporate, the solvent & to get a black shining crystal powder form
8. 1gm of each extract was diluted with 10 ml of an inert solvent dimethyl formamide (DMFO) to obtain 10% conc.
9. This concentration was further diluted to obtain 20%, 30%, 40% ans 50% concentrations and stored in sterile test tubes.

EXTRACTION

B. FORMULA

Sr No.	Ingredients	Category	Optimized g		
			Formulation (a)	Formulation(b)	Formulation(c)
1	Datura (stem bark)	Antifungal	10gm	15gm	20gm
2	Garlic (bulb)	Antifungal	10gm	15gm	20gm
3	Cinnamon (bark)	Antifungal	10gm	15gm	20gm
4	Lemongrass (leaves)	Antifungal	10gm	15gm	20gm

EVALUATION:-

1. <u>ASH VALUE</u>:-

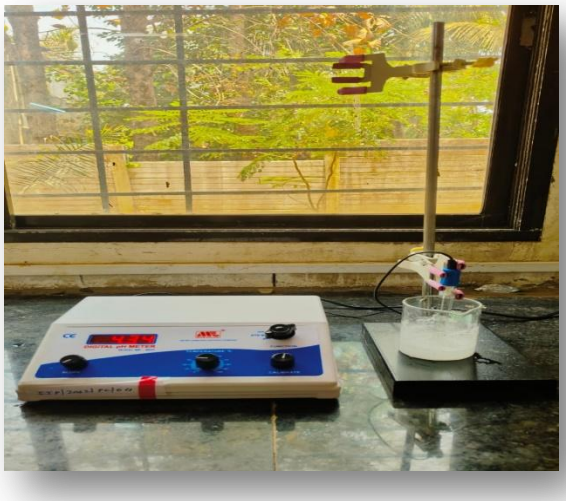
An ash test involves taking a known 2gm of sample, placing the weighed sample into a dried. pre-weighed Porcelain crucible. burning away the crude drug in an air atmosphere at temperature above 500°C, and weighing the crucible after it is has been cooled to room temperature in a desiccator.

2. EXTRACTIVE VALUE:-

Take 4gm of the weighed coarse powder weight 100ml water in 100ml stoppered flask for 24hrs.
Filter rapidly through filter paper and collect the filtrate evaporate 25 ml of extract to dryness

3. pH TEST:-

Determine the pH of powder by suitable means; it should be 3.0 to 7.0.



4. LOSS OF DRYING TEST:-

To perform loss on drying experiments we have to weigh the crucible in an empty state and then measure 0.50 gm of the crude drug than allow it to dry in 100-105 degree for about 15 min. than place it in a desiccator to cool down and to prevent further moisture absorption and then again place it in the oven till constant weight is received.

5. Angle of repose

Take a clean and dry funnel and fix the funnel with a clamp then place the graph paper below the outlet of funnel and take a powder & pour it onto the graph paper via the funnel. Pour the powder until the top of powder (heap) touch or close to the bottom of funnel steam Now, carefully outline the

circular base of spreading powder on graph and measure the diameter of the circular base of spreading & calculate the radius measure the height of the piles(heap) with ruler then repeat the same procedure for 3 times to get accurate result and then calculate the angle of repose by using formula

PHYSICAL PROPERTIES:-

1.MOISTURE CONTENT:-
Moisture content is defined as the percentage of the weight of a saturated object that is associated with water.

2.Porosity
Porosity is the quality of being porous, or full of tiny holes. Liquids go right through things that have porosity.

CHEMICAL PROPERTIES

1. DENSITY
The density of material shows the denseness of that material in a specific given area

RESULT AND DISCUSSION

The result obtained in this study suggest that herbal formulation prepare and possess antifungal activity the component of herbal antifungal powder formulation was selected due to their reported action that's plays preventative and curative role in prevention of fungal infection
Antifungal powder prepared passes all physical parameter and shows the significant antifungal activity.

Sr.no	**Parameter**	**Observation /value**
1.	colour	Brownish
2.	Odour	pungent
3.	pH	5
4.	Moisture Content	22.3

EVALUATION RESULT:-

We perform following test and result might be given below: -

Total Ash value of Datura:- 10% w/w
Extractive value of Datura:- water soluble 40%w/w
Loss of Drying of Datura:- 4 %.

Total Ash value of garlic:- 15%w/w
Extractive value of garlic:- water soluble:20% w/w
Loss of Drying of Garlic :- 18%

Total Ash value of cinnamon:- 10% w/w
Extractive value of cinnamon: - water soluble: 10% w/w
Loss of Drying of cinnamon :- 20%

Total Ash value of lemongrass: - 15% w/w
Extractive value of lemongrass: - water soluble: 20% w/w
Loss of Drying of lemongrass :- 14 %

Organoleptic Properties Calculations
1.Bulk density :- 0.457gm/ml
2.Tapped density:- 0.64gm/ml
3.Angle of repose :-
41.58 degree's (Passable)
4.Ph:- 5.4
5.Carr's index:-22.5
6.Hausner's ratio:- 1.20

Physical Properties Calculations
1.Moisture Content :- 22.3%

2.Porosity:- 0.93

Chemical Properties Calculations

1.Density:- 1.7gm/ml

PHYTOCHEMICAL SCREENING RESULT:-

Test	Datura	Garlic	Cinnamon	Lemongrass
Flavonoids	present	present	present	present
Alkaloids	present	present	present	present
Glycosides	present	present	present	present
Tannins	present	absent	present	present

CONCLUSION :-

The formulation studies of all this formulation were with in Specification also the Physicochemical properties of prepare Antifungal powder like color odor, pH, Lose of drying extractive value, Ash value, but among the formulation it within the all Specification it has proper concentration of talc powder.

The present study helps to develop effective and Tale safe as a antifungal base Herbal 50g Talc as a base Antifungal powder.

clinical trials and stability studies are needed for future concern.

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