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"A Review on - Preparation And Evaluation Of Herbal Antifungal Cream By Herbal Plant Extract Of Agaricus Bisporus Mushroom "

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● Abstract-:

To study the growing herbal plants for natural skin care product, these study Introduces a novel approach to the fungal or bacterial infection by formulating and evaluating and antifungal or Antibacterial cream. That utilizes bottom Mushroom (Agaricus bisporus mushroom) . Powder as the primary active ingredient. To gain a comprehensive understanding of the active ingredient, the study includes and analysis of it's chemical test, cultivation, and microbial assay. Additionally, the phytochemical testing is conducted to formulated and evaluate the Antifungal activity of the Agaricus bisporus mushroom powder extract, using Soxhlation method.

The study contribute to the advancement of knowledge in the filed of natural skin care solution and provide valuable information into the development of general effective Antifungal creams.

By utilising Agaricus bisporus mushroom as the primary active ingredient, these research aims to meet the demand of for natural skin care product.

- **Keyword:-** Agaricus bisporus mushroom, Soxhlation and steam distillation method ,Antibacterial and Antifungal activities.

Introduction:-

Cream are the topical formulation which can be applied on skin. Cream is a also called as viscous liquid or semi solid emulsion of either the oil-in-water or water-in-oil type' Dosage forms which consistency varies by oil and water.

Cream are use for cosmetic preparation such as cleansing, beautifying, improving, appearances, protective function. Cream are considered as a pharmaceutical product as they are developed in the pharmaceutical industry.

Cream can be ayurvedic, herbal or allopathic which are used by people according to their needs for their skin care condition. They contain one or more drugs substance dissolved or dispersed in a suitable base.

Cream can be classified as two type of the basis

1. Oil-in-water (O/W cream) – example- vanishing cream.
2. Water-in-oil (W/O cream)-example- Cold cream

All the skin cream can be classified different methods;

1. According to function- example- cleansing foundation
2. According to characteristics properties, example- cold cream and vanishing cream
3. According to the nature or type of emulsion

The various types of classification including;

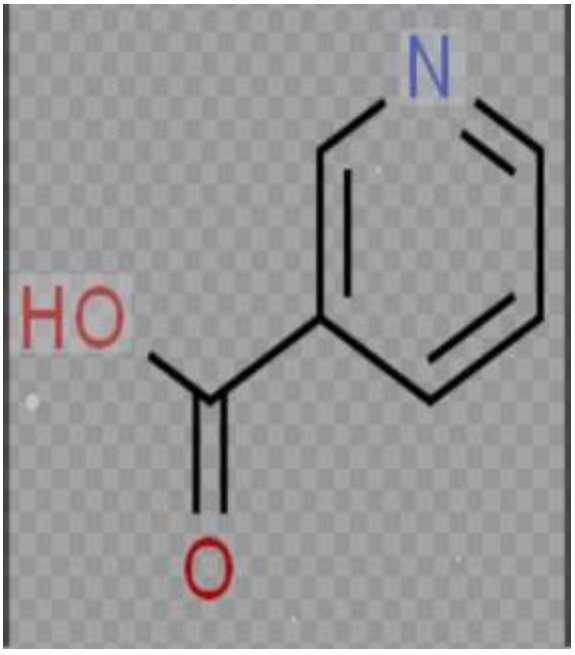
1. Make-up cream W/O – vanishing cream and foundation cream
2. Cleansing cream, cleansing milk, cleansing lotion W/O emulsion.
3. Winter cream W/O emulsion, cold cream or moisturizing cream
4. All purpose cream and general cream
5. Night cream and massage cream
6. Skin protective cream
7. Hand and body cream.[1]

- **Ingredients-:**

1. Agaricus bisporus mushroom:-

1. **Common name-** white button pizza, mushroom, crimini, portabella.
2. **Scientific name-** Agaricus bisporus[14]
3. **Family-** Agaricaceae[14]
4. **Chemical constituents-** The mushroom proteins comprise all essential amino acid manotory for human. Besides the comprise many nutritional Compounds such as iron, phosphorus and vitamin like absorbic acid ,thiamine, riboflavin ,niacin and ergosterol.[14]

5. **Structure-: Niacin**



6. **Geographical source –** Agaricus bisporus mushroom first cultivated in France. This species is recorded from Asia, south America, Europeso and know from Pakistan.
7. **Category**- Basidiomycetes.[14]
8. **Uses-** agaricus bisporus mushroom are generally used in anti-tumour, anti-oxidants Antimicrobial properties. In additional to Pharmaceutical properties mushroom are essential in our diet.[14]

2.Honey -

- **Common name-** APIs mellifera, [8]
- **Biological source-** Honey is natural product formed nectar of flowers by honeybees Apis mellifera.
- **Family-** Apidae
- **Geographical source**-honey are found in the Greeks, Chinese, Egyptians, Romans, Mayans and Babylonians consumed honey both for nutritional aims and for it's medicinal properties.[2]
- **Chemical constituents-** These are the fruits sugar (fructose) , which has among the highest (41%) grapes sugar (glucose), which has about 34% of ordinary sugar (sucrose) which is between 1 and 2% .[8]
- **Uses-**

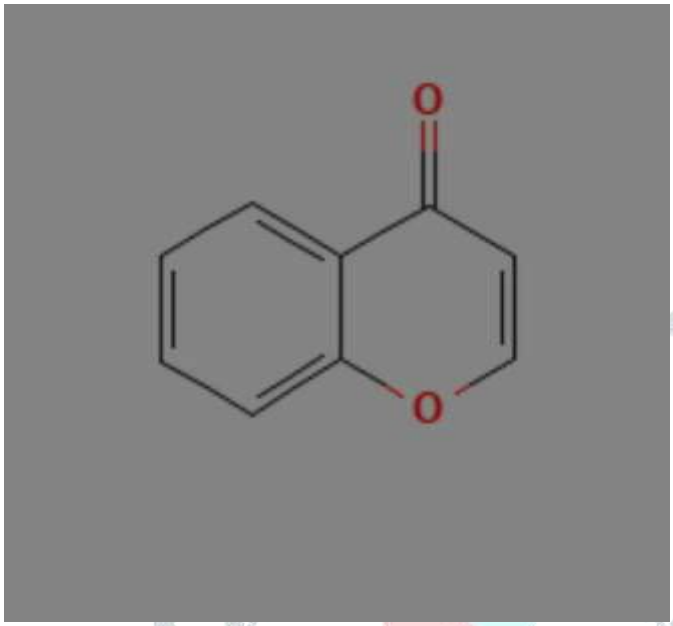
1.Honey used has several potential Health and skin care benefits, including anti-microbial effect and wound – healing properties.

2.These properties may make honey and attractive alternative therapy for people leaving with certain skin condition, as an acne, psoriasis or eczema.[7]

3.Aleo vera-

- **Common name-** Indian aleo and burn aleo .
- **Biological source**- the botanical name of aloe vera is aloe barbadensis Miller.[5]
- **Family-** Asphodelacear (Liliaceae)[9]
- **Geographical source-** aleo vera are mainly grown in Africa, Asia, Europe and America in India, it is found in Rajasthan, Andhra Pradesh, Gujarat, Maharashtra and Tamil Nadu.
- **Chemical constituents-** Aleo vera contain approximately 110 potentially active constituents from 6 different classes: chromone and it's glycoside derivatives., Antraquinone and it's glycoside derivatives, flavonoids, phenylpropanoids and coumarins,phenyl purone and phenyl derivatives, and phytosterols and others.[10]
- **Structure:**

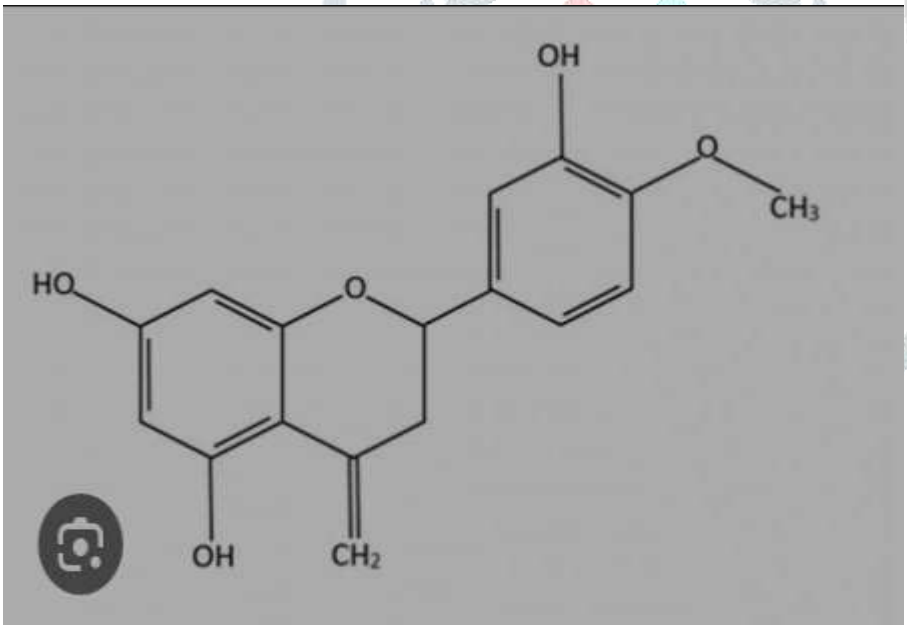
  Chromone.



- **Uses:**
  Aloe Vera is used as a
  1. Aleo vera is used as a Food is approved by the FDA
  2. Aleo vera is used as a Flavouring
  3. Aleo vera is used as a Cosmetics
  4. Aleo vera is used as a Food supplements.
  5. Aleo vera is used as a Herbal remedies.[12]

4.Lemon:-

- **Common name-** Cortex Limonis, fructus Limonis.
- **Biological source-** Lemon pill is consist of dried outer part of Pericarp citrus Limonis and citrus medica.
- **Family-** Rutaceae
- **Geographical source-**lemon It is indigenous to nourth India but cultivated on a vary large scale in countries like Spain , Italy and california.lemon are cultivated, Maharashtra, Madhya Pradesh and panjab.
- **Chemical constituents-** the chemical Constituent found in lemon Limonene 90%, citral (4%) , Hesperidine, Neohesperidine, Rutin, Pectin, Vitamin – C , calcium oxalate crystal.
- **Structure-** Hesperidine



- **Uses-**
    1. Lemon are used as a Carminative
    2. Lemon are used as a Stimulant
    3. Lemon Oil is use as perfuming and flavouring agent extraction of pectin of volatile oil.[13]

4 Mint -: (Mentha peppermint)

Common name-:menta peppermint
Family-: Lamiaceae
Chemical constituents- mentha peppermint flowering cycle standardized to contain no less than 44% methanol, 15-30% methone, 5% ester, it's additional to various types terpenoids 12%, polymerized polyphenol 19% , cartones, tacopherols, betaine and choline.
Uses-: mentha peppermint used primarily to treat nausea rather than actual vometing peppermint essential oil is effective both in invivo and in-vitro. Mentha Peppermint also recognised antispasmodic effect and relive colonic spams within 30seconds.[11]

- **Materials and methods-:**

1. **Collection of herbs-:** Herbs are collected dried and sieved using sieve 30 and store in air dried container.

2. **Soxhlation method-:** Soxhlation method are also referred to as the continuous hot extraction. The equipment used is also called as a soxhlet extractor that is fabricated of glass.

Construction- Heating source like heating metal. The heating temperature is built on the solvent employed to extraction.

Due to heat the solvent in the bottom flask vaporizes into the condenser and then drip back to the sample thimble.

When liquid content reaches the siphon arm, the liquid contents emptied into the bottom flask again and the process is the end of the process is indicated the clear solution in the siphon tube.

The use of this system is possible that instead of many portions of warm solvent being passed through the sample,then the recycled.[16]

3. **Steam distillation method-:**

   To isolated the essential oil by steam extractionthe plant material is placed in column above boiler that is filled with water.

The water is then brought to a boil and due to the high temperature of the steam ,the essential oil are released from the oil glands in the plant tissue and carried with the vapour to the condenser.

The vapour mixture of a water and oil is condensed by the cooling water and collected in an essential oil separator where the oil and hydrosol are allowed to naturally separate.[4][3]

4. **Decoction-:** In this extraction method, the crude drug are boil in water followed by cooling, straining and passing sufficient cold water through the drug to produce the required volume.[16]

5. **Percolation-:** In this extraction method, the plant part is placed in appropriate amount of solvent for approximately 4hr in placed container. Then add the additional solvent is top of the raw material and macerated in a closed container for 24 hrs. The percolator is opend and the extract poured out dip-wise. Additional solvent until the percolate measure about the three-quarters of required volume of finished product. The Marc is pressed and the pressed liquid is added to the percolate. Additional solvent added to the produce the required volume and the mixed liquid is clarified by filtration or by detecting.[16]

6. **Ultrasound assisted extraction method and sonication extraction method-;** in these method the ultrasound frequencies ranging from 20 to 2000kHz are used in UAE. The mechanical effect of ultrasound ascoutic cavitation improve surface contact between solvent and sample, as well as permeability. The physical and chemical properties of material treated to ultrasound altered and the plant cell are distrupted. Allowing chemical to be released and increasing mass transit of solvent into plant cell and the process the simple and low cost technology that can be utilised the extract phytochemical on a small or large scale.[19]

7. **Infusion-:** in these extraction method, the crude drug are macerated with either cold or boiling water.[16]

- **Observation table:-**

Sr. No	Ingredient	Role	Properties
1	Mint		Anti-inflammatory
2	Lemon Oil	Base	Antibacterial and Antifungal activity
3	Aloe Vera	Preservatives	Antioxidant
4	Herb Extract	Active Ingredient	Antibacterial and Antifungal activity
5	Honey	Moisture	Antioxidant activity
6	Potato Starch	Skin Whitener	Anti-inflammatory
7	Water	Vehicle	-

- **Method:-**

1. Weight 2gm herbal extracts into mortar an add polymer which is previously soaked in H2O and triturate thoroughly.
2. Prepared aqueous phase by adding potato starch (skin whitener) and aloe Vera (preservative) in water.
3. Prepared and oily phase by melting lemon oil in honey and arachis oil in china dish at 60°c.
4. Heat aqueous phase separately.
5. Add aqueous phase into oil phase dropwise in mortar containing extract with stirring until creamy texture in obtained.

- **Evaluation method-:**

1. **Organoleptic evaluation-:**
   A) Colour
   B) Odour
   C) Taste
   D) Appearance
2. **Microbial contamination-:** cream inculcate in agar media by streak plate method and control was prepared by excluding the cream. The plates were placed in to incubator. And incubated at 37°C. For 24hrs. And take place and check microbial growth.
3. **Stability Test-:** mechanical test cream Sample insert into centrifugal tube at speed 3750 kpm for half hrs.or 5000- 10000 rpm for 50 min.
4. **Homogeneity-:** by visual appearance and by touch.
5. **After feel-:** Emollient, Slipperiness and smt of residue left.

6. **Dry test-** under microscope observe disperse globule appear insed colour to colourless. Is O/W type. Confirm Formulation were O/W type.
7. **Removal-:** Formulation applied on skin was easily removal by tap water.
8. **Irritancy test-:** Formulation show no redness and irritation.
9. **Skin whitening-:** 5 volunteer were selected.preparation are applied and observed for 1 month . After one month skin test has been clean and there is no pigmentation.

- **Antimicrobial Activity**

Determination of zone of inhibition method

In vitro antibacterial and antifungal activities were examined for hydroalcohol extracts. Antibacterial and antifungal activities of crude drug extract against four pathogenic bacteria (two Gram-positive and negative) and three pathogenic fungi were investigated by the agar disk diffusion method.

Antimicrobial activity testing was carried out by using agar cup method. Each purified extracts were dissolved in dimethyl sulfoxide, sterilized by filtration using sintered glass filter, and stored at 4°C. For the determination of zone of inhibition, pure Gram-positive, Gram-negative, and fungal strains were taken as a standard antibiotic for comparison of the results. All the extracts were screened for their antibacterial and antifungal activities against the Escherichia coli, Pseudomonas aeruginosa, Staphylococcus aureus, Streptococcus pyogenes *and the fungi* Candida albicans, Aspergillus niger, *and* Aspergillus clavatus. The sets of five dilutions (5, 25, 50, 100, and 250 µg/ml) of *Cassia fistula* extract and standard drugs were prepared in double-distilled water using nutrient agar tubes. Mueller-Hinton sterile agar plates were seeded with indicator bacterial strains (10^8 cfu) and allowed to stay at 37°C for 3 hours. Control experiments were carried out under similar condition by using ampicillin, chloramphenicol, ciprofloxacin, and norfloxacin for antibacterial activity and nystatin and griseofulvin for antifungal activity as standard drugs. The zones of growth inhibition around the disks were measured after 18 to 24 hours of in incubation at 37°C for bacteria and 48 to 96 hours for fungi at 28°C. The sensitivities of the microorganism species to the plant extracts were determined by measuring the sizes of inhibitory zones (including the diameter of disk) on the agar surface around the disks, and values <8 mm were considered as not active against microorganisms. [17]

- **Conclusion-:**

This study has highlighted the importance of herbal plants .
This study focuses on different extraction and preparation methods of plant extract.

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