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Identification and Evaluation of herbal based cough syrup, lipstick and cold cream by using Lepidium Sativum

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Abstract:

Cough is a common respiratory symptom that affects individuals of all ages. Herbal remedies have been widely used as an alternative or complementary treatment for coughs. This study aims to identify and evaluate the effectiveness of a herbal-based cough syrup containing extracts of Lepidium Sativum (garden cress), tulsi (holy basil), apple, Indian honey, ginger, clove, vasaka (Adhatodavasica), and rose hips. The cough syrup was formulated based on traditional knowledge and previous scientific research on the therapeutic properties of these herbal ingredients. The study employed various analytical techniques to identify and quantify the active compounds present in the cough syrup. The syrup was also evaluated for its physicochemical properties, including viscosity, pH, and organoleptic characteristics. Basic Safety evaluations were carried out to determine any potential toxicity or adverse effects associated with the herbal-based cough syrup.The results of this study of Safety evaluations demonstrated no signs of toxicity or adverse effects. Overall, this study provides promising evidence for the identification and evaluation of a herbal-based cough syrup containing *Lepidiumsativum*, tulsi, apple extract, Indian honey, clove, vasaka, and rose hips. Further clinical trials are warranted to assess its efficacy in human subjects and establish its potential as an alternative treatment for coughs. Our research study 2nd part focuses on the formulation and development of a proper herbal based lipstick utilizing Lepidium Sativum seed extract along with various natural ingredients. Our experiment aimed to create a lipstick with vibrant colors and desirable cosmetic properties. The ingredients used included beeswax, mango butter, olive oil, castor oil, edible coloring agents (cinnamon bark powder, cocoa powder, turmeric powder), Lepidium Sativum seeds extract, vanilla essence, rose essence and lemon juice. Our abstract provides a brief overview of the research's objectives and summarizes the key findings and discussions. Our aim of this 3rd part of study was to develop a proper cold cream by formulation incorporating Lepidium Sativum Seed Extract and evaluate its properties. The cold cream was formulated by using specific ingredients including Propyl Paraben, Borax, Beeswax, Liquid Paraffin, Neem Oil

and Almond Oil. Our process of Lepidium Sativum Seeds extract was optimized and the cream's physical and chemical characteristics were assessed.

Keywords:

Lepidium Sativum Seeds extract, tulsi (holy basil), apple, Indian honey, ginger, clove, vasaka (Adhatodavasica), rose petals

1. Introduction:

Cough is a reflex action that plays a crucial role in clearing the respiratory system of irritants, mucus, and foreign substances. However, persistent or severe coughing can be distressing and may require treatment. Traditional herbal remedies have been used for centuries to alleviate cough symptoms and promote respiratory health. In recent years, there has been growing interest in exploring the therapeutic potential of herbal medicines for cough management.

LepidiumSativum, commonly known as garden cress, has been traditionally used for its expectorant properties. It is believed to help loosen and expel mucus, thereby relieving cough symptoms. Tulsi, or holy basil, is revered in Ayurveda for its antimicrobial and anti-inflammatory properties. It is considered beneficial in soothing throat irritation and reducing coughing. Apple extract is rich in antioxidants and has been associated with respiratory health benefits.

Indian honey is known for its antimicrobial properties and has been used in traditional medicine to soothe throat irritation and suppress coughs. Clove, another herbal ingredient, possesses analgesic and antimicrobial properties and is believed to provide relief from cough symptoms. Vasaka, or Adhatodavasica, is a well-known medicinal plant in Ayurveda and has been used for its bronchodilatory and expectorant effects. Rose hips, the fruit of the wild rose plant, are rich in vitamin C and antioxidants, which may support respiratory health.

Given the rich traditional knowledge and potential therapeutic properties of these herbal ingredients, this study aims to identify and evaluate a herbal based cough syrup containing LepidiumSativum, tulsi, apple extract, Indian honey, clove, vasaka, and rose hips. The evaluation will include chemical analysis, physicochemical characterization, assessment of antitussive and expectorant activities, as well as safety evaluations. Our new research 2nd part suggests that this cough syrup is very potent so, further research required for the biotechnology work. Our introduction section provides an overview of the significance of herbal cosmetics in the beauty industry and the rising demand for natural and sustainable products. We introduces Lepidium Sativum seed extract as a potential ingredient due to its beneficial properties. Our section also outlines the research objectives, which are to formulate a herbal based lipstick and evaluate its properties. Cold creams are widely used in skincare due to their moisturizing and protective properties. Lepidium Sativum Seed Extract has shown potential benefits for skin

health. This research study aimed to create a cold cream formulation that incorporates Lepidium Sativum Seed Extract and assess its quality and effectiveness.

2. Materials and Methods:

The plant extracts were commercially purchased. The employed chemicals were of analytical grade. We used Systronics pH meter purchased by Lab ,We used Viscosity meter of LABMAN 20-20000 Digital Rotational Viscometer, Model No-LMDV60 purchased by Lab.

Table.1: F1 for producing the herbal cough syrup

Ingredients	**Quantity**
Lepidium Sativum Aqeous seed extract	0.0005%
Tulsi leaf extract	5.5gm
Apple fruit aqeous extract	2.5gm
Ginger extract	2.125gm
Clove extract	1gm
Vasaka extract	7.5gm
Rose hips	4.5gm
Honey	42.5ml

2.1. 1st method - Decoction:

Collect and mix the herbal ingredients. Add the mixture to 500ml of water. Attach a reflux condenser to the container. Boil the mixture under careful observation using a water bath for 2 hours and 50 minutes. Continue boiling until the volume reduces to one fourth of the original volume. Allow the liquid to cool down. Filter the cooled liquid.

2.2. 2nd method - Maceration:

Take 42.5ml of honey in a beaker. Mix 2.125gm of ginger with the honey in the beaker. Seal the beaker with aluminum foil and let it stand at room temperature for 24 hours. After 24 hours, filter the mixture.

2.3. 3rd method - Final preparation:

Take 39.5ml of the macerated ginger and honey mixture. Add 24.5ml of the decoction to the mixture. Stir the mixture slowly. Ensure that the herbal syrup is properly prepared and check its solubility.

3. Materials and Methods 2nd part for Herbal Based Lipstick:

Bees wax, mango butter, olive oil, castor oil, cinnamon bark powder, cocoa powder, turmeric powder, vanilla essence, rose essence, lemon juice we purchased from online and lepidium sativum seeds which we purchased through online already extracted.

3.1. Herbal Lipstick Formulation:

As formulated the herbal lipstick white bees wax, mango butter, castor oil, olive oil were very properly melted in the porcelain dish on water bath by decreasing order of their melting point. As coloring matter which are edible like cinnamon bark powder, turmeric powder, cocoa powder, Lepidium Sativum seeds extract properly mixed with castor oil after heated. At same temperature both phases were mixed. At 34°C the lemon juice, rose and vanilla essence properly mixed. After mixture properly poured into lipstick and in excess amount it mould after on ice bath mould was kept. After we scrapped the solidification amount with blade. After from mould and framed lipstick were removed. After with lipstick container prepared lipstick were fitted and properly used for further identification.

3.2. Identification of Herbal Lipstick:

By methodology the identification were carried out of Nanda et al, Deshmukh et al, Sainath et al[9-11]

3.3. Texture and Colour:

For color, smooth texture and glossy formulated lipstick were properly checked.

3.4. PH:

We checked pH by following (Paul Roy, Shibanjan & Deka, Kamal & Prakash Rai, Shyam & Mishra, Pratyush. (2023). FORMULATION OF A NOVEL HERBAL BASED SHAMPOO FOR HAIR.)

3.5. Melting Point Determination:

As for lipstick formulation melting point determination is an important factor. By using capillary tube method our formulated lipstick melting point was determined. first we taken 49mg of lipstick sample after melted after filled into the glass capillary tube properly opened at both ends. For 1hr57min capillary was properly cooled into ice and with thermometer it will be fastened. As thermometer with the capillary was properly placed on heating plate with magnetic stirrer. At fixed speed stitrring and heating was started slowly. along with the capillary tube the temperature with material moves perfectly.

Table. 2: Ingredients List

Ingredients	Quantity Taken
Bees Wax	1.1gm
Mango Butter	1.4ml
Olive Oil	0.9ml
Castor Oil	0.9ml
Cinnamon Powder	0.5gm
Cocoa Powder	0.5gm
Turmeric Powder	0.5gm
Lepidium Sativum Seeds Extract	0.7gm
Vanilla Essence	0.3ml
Rose Essence	0.15ml
Lemon Juice	2ml

3.6. Breaking Point:

To perfectly find out the value the test was perfectly carried out. Our test gives proper strength of Lipstick. In a perfect socket inch away from edge support our formulated lipstick was perfectly held horizontally. By a specific value of (9.9gm) the weight gradually increased at interval of 29sec and weight at the which breaks was perfectly considered as breaking point.

(v)Softening Point-As our formulated lipstick able to perfectly withstand range of conditions perfectly subjected in the consumer's handbag. Our lipstick perfectly resistant for varying temperature conditions and apply just very easily in cold and as in hot weather. We determined the softening point of our formulated lipstick by ring and ball method.

3.7. Ball and Ring Method:

The support or ring orifice is taken perfectly our formulated lipstick inserted it. Below the orifice and extra mass the above was removed by using a sharp blade leaving a perfect tablet of lipstick properly fitted into ring. By refrigerator 5°C it was placed for about 10min13sec.Onto a stand ring was tied.500ml of a beaker containing water at the room temperature placed on hot plate with the magnetic stirrer. On the lipstick tablet a steel ball perfectly to delicately placed. The ball with perfectly support was then inserted into beaker till submerged into it. Slow agitation and heating was then begun. By using a thermometer temperature was properly monitored. As the softening point of our lipstick temperature which mass of our lipstick and steel ball loosed perfectly and falls to bottom of beaker.

3.8. Anomalies Surface:

By surface defects this was studied such as formation for the crystals on surface, by contamination of fungi, moulds, formation of the wrinkles and the exudation of the liquid substances with solid of the fatty substances.

3.9. Stability of Perfume:

Our formulated lipsticks compared with the very standard marketed formulation for all the identification parameters.

4. Materials and Methods 3rd part:

We purchased Propyl Paraben Akhil Healthcare Pvt Ltd, Borax from Suvidhi Industries Pvt Ltd, Liquid Paraffin from Triveni Chemicals Pvt Ltd, Neem oil and Almond Oil through online

and Lepidium Sativum seed extract already available in our lab. In porcelain dish we take required quantity of Bees wax and liquid paraffin. After the mixture properly heated in the water bath for melting purpose. After from water bath we removed dish. After in a beaker we take borax with distilled water after we heat the solution at 74°C.As we added dropwise borax solution in porcelain dish with we continuously stirring. After we added propyl paraben in the porcelain dish for dissolved it. In this solution we add Lepidium Sativum Seeds extract with neem oil and almond oil quantity wise. After we added the perfume for the good frangrance. After our formulated cold cream obtained properly. Washability-As we applied cream in hand and under running we observed.

4.1. PH:

With help of buffer solution the pH meter calibrated properly. As we weight 4.9gm of cream after dissolved it 49ml of distilled water after by digital pH meter we measured the pH.

4.2. Viscosity:

By using viscometer at 100rpm with the spindle no. we determined viscosity of our formulated cold cream.

4.3. Spreading ability test:

As we applied sample of cream between the two slides and properly compressed between two glass slides to uniformly thickness by placing 100gm of the weight for 4min59sec.Then the proper weight added to weighting pan. After time of which the upper glass slide perfectly moved over lower slide was properly taken as measure of the spread ability.

4.4. Ability Test for Spreading=L/T×M where, M is the weight tight to the upper slide L is the length moved of glass slide T means take time:

Test for Irritancy-On left hand dorsal surface mark area of 1sq.cm .To the specific area cream was applied and noted perfectly. We checked edema, irritancy and erythema checked for regular intervals upto 23hr 59min and reported properly.

4.5. Microbial Growth Test:

As well as we prepared agar media prepared for our formulated cold cream properly inoculated on plate's agar media by the stick plate method and by omitting our formulated cold cream a control is perfectly prepared. In incubator plates are placed perfectly and incubated 38°C for

23hrs59min.After for incubation period plates are perfectly taken out and microbial growth checked and we compared with the control group.

4.6. Dye Test:

With our formulated cold cream scarlet red dye mixed properly. On microscope slide we placed a drop of our formulated cream after we covered with cover slip and after examined under a digital microscope. If disperse globules appearing red then ground is colourless. As our formulated cream is O/W type. But our visulization reverse condition occours W/O type of our formulated cold cream i.e. as disperse of globules become colorless.

4.7. Homogeneity:

As for visual appearance and test we checked homogeneity.

Ingredients:

Propyl Paraben (0.010gm) Borax (0.25gm) Beeswax (13gm) Liquid Paraffin (48gm) Lepidium Sativum Seeds extract (4gm) Neem Oil (22gm) Almond Oil (26gm)

Table.3: Ingredients list

Name of Ingredient	**Quantity (for 100gm)**
Propyl Paraben	0.010gm
Borax	0.25gm
Bees Wax	13gm
Liquid Paraffin	48gm
Lepidium Sativum Seed Extract	4gm
Neem Oil	22gm
Almond Oil	26gm

5. Result and Discussion:

5.1. Colour Examination:

If 5ml of prepared syrup was taken on a watch glass and placed against a white background in white LED light, the color observed by the naked eye on the composition of the syrup. Different syrups can have various colors, ranging from clear to translucent or opaque. The color of the syrup can be influenced by the presence of certain ingredients, such as dyes, natural pigments, or suspended particles. As we found the syrup colour is light yellowish brown.

5.2. Odour Examination:

To nullify the effect of the previous smelling and ensure accurate perception of the smell during each trial, we followed these steps:

5.3. Take a break:

After smelling the syrup for the first time, allow ourself a brief break of at least 2 minutes before proceeding to the second smelling. This will give your olfactory system enough time to recover from the previous scent.

5.4. Clear our nasal passages:

Ensure that our nasal passages are clear before each smelling trial. We can blow our nose gently or use a tissue to remove any residual scent or mucus that may interfere with your ability to perceive the smell accurately.

5.5. Reset our olfactory senses:

To neutralize our olfactory senses and prepare them for the next trial, we can sniff a neutral or unperfumed object, such as a clean piece of cloth or your own skin, between smelling trials. This will help eliminate any lingering scent molecules and reset our olfactory receptors.

5.6. Use controlled conditions:

It's important to conduct the smelling trials under controlled conditions to minimize external factors that could affect the perception of smell. Ensure the area is free from strong odors, perfumes, or other potential contaminants that could interfere with the accuracy of our observations.

By implementing these steps, we can help nullify the effect of the previous smelling and increase the reliability of our olfactory perception during each trial.

5.7. Taste Examination:

When we take a pinch of final syrup and found it to be slightly pungent in taste when examined on our taste buds.

5.8. PH: To obtain a meaningful pH measurement, it is recommended to follow a standardized procedure. Here is a general outline of a pH measurement process:

5.9. Calibrate the pH meter:

Ensure that the pH meter is properly calibrated using standard buffer solutions with known pH values. This step is essential for accurate pH measurements.

5.10. Rinse the pH electrode:

Rinse the pH electrode with distilled water to remove any impurities or residues from previous measurements.

5.11. Prepare the sample:

Take a small aliquot (sample) 10ml of the prepared syrup, in 100ml of volumetric flask. After properly at 100ml with distilled water make up volume properly. After sonicate for 12minutes.

5.12. Insert the pH electrode:

Immerse the pH electrode into the sample, making sure that the electrode is fully submerged and there are no air bubbles trapped around it. Allow a few moments for the reading to stabilize.as 1st, 2nd and 3rd methods pH were 6.1, 6.5, and 6.1.

5.13. Read the pH value:

Once the pH reading stabilizes on the pH meter, record the pH value displayed on the device. Make sure to note the temperature at which the measurement was taken if necessary.

5.14. Viscosity:

As the proper viscosity of the main formulations found to be properly, 0.01306 for 1st, 0.5727 poise for 2nd and 0.03938 poise for 3rd.

6. 2nd Part:

6.1. Formulation of the herbal Lipstick:

There are rapid growth of the market by use of cosmetics for women. By these chemicals has come into the limelight very recently however problem caused. To formulate our proper lipstick by using the ingredients our present research aimed to minimize the side effects. As we know lepidium sativum seed oil used for many purpose like soap making. The lepidium sativum seeds paste also used applied into the chapped lips also against skin problems. So,this is the main extract of our formulation.

6.2. Herbal Lipstick Identification:

As it is given in Table.4., our research presents the results of the study, including the appearance, texture, color and overall performance of the herbal based lipstick. We discuss any noticeable differences between this lipstick and commercial ones. We analyze the effects of Lepidium Sativum seed extract and other ingredients on the product's properties. We additionally, discuss the potential benefits and limitations of our lipstick formulation.

Table.4: Herbal Lipstick Formulation

S.No	Parameter	Herbal Lipstick Formulation	Marketed Formulation
1	Color	Light Wine Red	Red
2	Texture	Smooth	Smooth
3	pH	6.2	
4	Melting Point	61-63°C	62-64°C
5	Breaking Point	248gm	137gm
6	Softening Point	59°C	50-60°C
7	Surface Anomalies	No Defects	No Defects
8	Aging Stability	Smooth	Smooth
9	Purfume Stability	+++	+++

7. 3rd part:

For our research about our formulated cold cream we evaluated by following about the parameters.

7.1. PH: As we evaluated our formulated cold cream it is 6.1. As for herbal cold cream normal pH required 6.6.

7.2. Washability: As we carried out the test as we applying small amount of cold cream on our hand and after washing by mineral water.

7.3. Viscosity: As we used Brooke field viscometer at temperature of 26°C by using spindle no. 63 at 2.5 RPM. According to the results our formulated cold cream showed adequate viscosity.

7.4. Microbial Growth Test: No signs of the microbial growth after 24hr3min of the incubation at 38°C and it was comparable with control. Ability Test for Spreading-As ability test for spreading our formulated cold cream showed good ability of spreading property. In description separately evaluation test lesser of time taken for separation of two slides better of the spreading ability.

7.5. Dye Test: With our formulated cold cream scarlet red type dye mixed. On a microscopic slide cover with the cover slip we placed drop of our formulated cold cream after we examined under digital microscope. As we saw dispersed globules appearing colorless in red ground as it is W/O type.

7.6. Homogeneity: For our formulated cold cream homogeneity was judged by visual appearance and touch. The touch and appearance of our formulated cold cream is good.

Our present research about the findings and discuss the outcomes of our study we Analyze the physical and chemical properties of the cold cream. We discuss the stability and shelf life of the cream. We evaluate the sensory attributes such as texture, scent and overall user experience. With the assess the potential benefits of Lepidium Sativum Seed Extract in the cream for skin health. We compare the results to existing cold cream formulations on the market.

8. Conclusion:

The formulation seems that we are referring to a study on the preformulation and evaluation of three different formulations of cough syrup. Based on the information, the preformulation studies for all three formulations met the specified requirements. The physiochemical properties of the prepared syrup, such as color, odor, pH, and taste, were found to be satisfactory. Among the three formulations, it is mentioned that one particular formulation met all the specifications. This formulation had the proper concentration of honey as per the Indian Pharmacopoeia (IP) and also contained a suitable preservative. The study concludes that the research conducted has helped in the development of an effective and safe herbal cough syrup.

This cough syrup is based on a 39.5% w/v (weight/volume) concentration of honey as the main component of the syrup. It's important to note that the information provided is limited, and a comprehensive evaluation of the study's methods and results would require additional details. As according our research study 2nd part we successfully formulated our herbal lipstick by using different ingredients as our main ingredient is Lepidium Sativum which seeds extract has more benefits like it is used for skin, lips pain, it has good antioxidant properties etc. According our evaluation it has no side effects, so for the further research it will be safe after through clinical trials. Our formulated 3rd part cold cream has no side effects that we evaluated. As in the present market there are more synthetic cold creams. But herbal cold cream stimulating the blood circulation and help to maintaining skin elasticity and remove dirt. It suggested that our formulated cold cream was microbiologically perfect stable and also physiochemically. For further research according our information it has either no side effects or very little for clinical trials.

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