Article

FORMULATION DEVELOPMENT AND EVALUATION OF HERBAL LOTION OF EMBELIA RIBES SEEDS

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Abstract:

Now a day's synthetic chemicals are produces many harmful effects to our body so that's why we selected herbal products for making herbal *Embelia ribes* seeds lotion for the anti-inflammatory activity by using W/O emulsion method due to reducing side effects, cheap, better therapeutic effect, ease of available etc. present studied that all parameters passed and there is no cause irritation, redness, itches, etc. after administration or applied on skin its proved by skin irritation test.The herbal cosmetics are prepared from herbal extracts i.e used for aromatic values & increases the demands of consumers for cosmetic preparations. Natural products are 100% safe for the skin. Lotions are externally used semisolid preparations. They are basically applied with the help of cotton and hands etc. Quality evaluation of the formulated product was assessed by using different evaluation methods. The prepared lotion displayed good consistency and spreadability, homogeneity, pH, non-greasy, and no symptoms of phase separation during the research period. Stability properties of the produced lotion, such as visual appearance, nature, viscosity, and scent, did not change significantly during the study time.

Keywords: Anti- inflammatory, Herbal lotion, Embelia ribes seeds, Cosmetics

Introduction:

Embelia ribes is a restorative woody climber belongs to the *Myrsinaceae* family. It is generally known as false pepper or Vidanga .E. ribes is one of the 32 medicinal plant species distinguished by the Therapeutic Board, Govt. of India, New Delhi, as being significant for huge scope development as a result of its business utilize[1]. E. ribes develops in semi-evergreen forests at a height of 1,500m saw as in some parts of Arunachal Pradesh, West Bengal, and Andhra Pradesh Madhya Pradesh and in lower Himalayas also all through India[2]. The organic products, leaves and

roots are utilized to fix different illnesses Embelin detailed as watery concentrate of the organic products showed antibacterial furthermore, antifertility exercises[4]. It has the counter bacterial and antiprotozoal properties[3]. Likewise in stomach issues, lung illnesses, clogging, acid reflux, growth diseases, coronary illness and heftiness[4] , antifertility[5] , pain relieving, mitigating, cancer prevention agent[6].

A lotion is a viscous topical preparation intended for topical application to the skin with bare hands, a brush, a clean cloth or cotton. Most cosmetic lotions are intended to provide moisturizing effect, and others are anti-inflammatory, antibacterial, sunscreen lotion etc. Cosmetic lotions may contain herbal extracts to promote the various skin elated benefits in many case[7]. Herbal extracts are basically added to cosmetics preparations because of a few related properties like cell reinforcement, antibacterial and anti-inflammatory properties. Herbal products cures enhance the body with supplements and other valuable minerals. The goal of the current paper was improvement of plan of cream from home grown removes and their assessment[8].

Material & Methods

Plant material

Seed of *Embellia ribes* were collected from local market of Jaipur. The seed were shade dried using tray under controlled temperature. Seeds were then converted in powder by the help of grinding mill and powder was store in polythene bags which free from microbes. The plant was identified in NIMS Institute of Pharmacy; NIMS University Jaipur Rajasthan and reference number of specimen is NU/Nip/2022/201

Physiochemical parameters of the drug

Ash value of extract

Weigh accurately about 3g of the powdered drug in glass crucible. Incinerate the powdered drug by increasing the heat gradually until the sample was free from carbon and cool it keep in a desiccators. Weigh the ash and calculate the percentage of total ash in contrast to the air dried sample[9]

Foaming index

Weigh accurately 1g of coarsely powdered drug. Cleaned stopper test tubes 10 numbers are taken marked with 1 to 10. Take the successive portions 1, 2 ml up to 10 ml drug in separate tubes and adjust remaining volume with liquid upto 10 ml in each test tube shake them for 15 seconds and allow to stand for 15 mins. Then measure the height of the forth formed[9]

Swelling index

Take 1 g of sample drug. Take 25 ml measuring cylinder. Add 1g drug into measuring cylinder with 20 ml of water. Shake the solution gently. Place it for 24 hours settling down of particles. Measure the initial volume after 24 hrs. Measure the final volume[9]

Extractive value

The extract received from crude drug is a indication of their chemical constituents present in drug. It is well known that chemical constituents having different nature and properties that's why various solvent are used for extraction. The solvents which are used for extraction should dissolve reasonable quantities of required substances[10]

Extraction

The selection of solvent depends on the fact that how much it dissolved the required phyto constituents. Selected plants materials was extracted by continuous hot extraction with Methanol as a solvent which shown in Table 01

Table No 01: Extraction Procedure

S No	Plant Name	Part Used	Solvent	Procedure
1	*Embelia Ribes*	Seeds	Methanol	Soxhlet Extraction

Preliminary Phytochemical screening

The primary tests for the detection of various metabolites were carried out on selected plant by adopting standard procedures .The extracts obtained by selected extraction method were used to perform the identification test for the presence of tannins, alkaloids, flavonoids, terpenoids, steroids, amino acids, carbohydrates, proteins and saponins.

Preparation of test solution: 500mg extract of all selected plants were dissolved in 100ml of solvent and filtered by what man filter paper No. 1. The filtrates thus obtained were used as test solutions for the various identification tests like[11].

Formulation of Embelia Ribes Lotion

Phase A (Water phase)

1. Take accurately weighted carbopol 934 and dissolved it in 50% quantity of deionized water using mechanical stirrer and allow it to swell for a minimum of 2 hours.
2. Take another 50% of deionized water and add propyl paraben, methyl paraben, citric acid, stand zed extract of *Embellia ribes* seeds, organic glycerin, hydrogenated castor oil
   under constant stirring at 250-300 RPM followed by addition of carbopol 934 water solution under continuous stirring.

Phase B (oil phase)

3. Take accurately weighted cetostearyl alcohol and melt it at 70^0C followed by addition of stearic acid and continue melting 70^0C .add coconut oil and liquid paraffin oil to above melted mixture
4. Heat the phase A at 60^0C and, slowly start addition of phase A into phase B under

continuous homogenization, followed by the homogenizing the entire content for next 15 mins.

5. Allow the entire content to cooled down at room temperature and add peppermint essential oil under stirring condition.
6. Evaluate the formulation for colour, odour, PH, Density, Physical appearance, viscosity and spread ability.

Ingredients	Quantity % w/w	Quantity(for 100 **gram)**	Importance in **formulation**
Phase A (Water phase)			
Extract: *Embelia Ribes Seeds*	5%	5g	Anti-inflammatory
Organic glycerin	2%	2g	Moisturizer
Carbapol 934	0.2%	0.2g	Skin smoother
Propyl paraben	0.02%	0.02g	Preservative
Methyl paraben	0.05%	0.05g	Preservative
Castor oil	0.5%	0.5g	Emulsifier
peppermint oil	0.5%	0.5 ml	Fragrance
Citric acid	0.1%	0.1g	Buffer
Distill water	69.13%	69.13 ml	Base
Phase B (Oil phase)			
Coconut oil	3%	3ml	Skin nutrient promoter
Liquid paraffin	15%	15ml	Base oil
Cetostearyl alcohol	3%	3g	Emollient
Stearic acid	2%	2g	Co-emulsifier

Table No 02: Formulation of *Embelia Ribes* Lotion

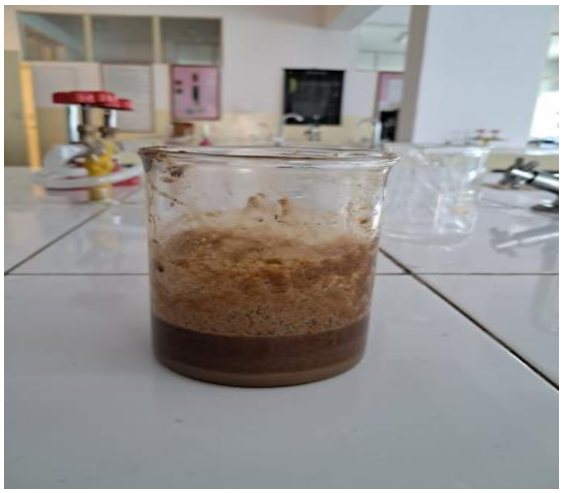

Fig No 01: *Embelia Ribes* Lotion

***Evaluation Parameters of lotion*:** The Lotion was evaluated for

Appearance

The color, odor and homogeneity of the lotion were visually determined[12].

Consistency and Grassiness

Both this parameter was performed on the skin. They both were checked by applying on skin[16].

Spreadability test:

0.1g Sample was applied between two glass slides and was compressed to uniform thickness by placing 100gm weight for 5minutes. Weight was added to the pan. The Spreadability was calculated by using radius of circle formed by compressed slide Spreadability =m*l/t m = Weight tide to upper slide l = length moved on the glass slide t = time taken[13].

Washability

A portion of lotion was applied over the skin of hand and allowed to flow under the force of flowing tap water for 10 minutes. The time when the lotion completely removed was noted.[14].

Homogeneity

The formulation was tested for homogeneity by visual appearance and by touch[15].

Absorbency

Rated at which product is perceived to be absorbed into skin. Evaluated by noting changes in skin surface. Rated slow-moderated-fast[16]

Viscosity

The measurement of viscosity of the prepared gel was done with a Brookfield viscometer spindle no.7 and speed 60rpm at 25^{o}C[73]. The formulated lotion was directly immersed into the spindle and the viscosity was measured[17]

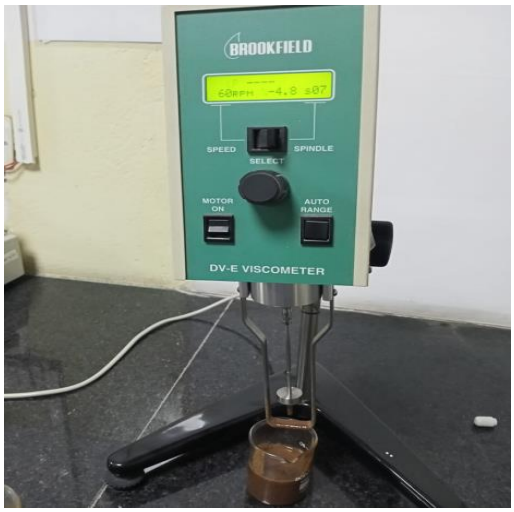

Fig No 02: Brookfield Viscometer

pH

Lotion pH was measured with a digital pH meter. The pH meter was calibrated using standard buffer solution. About 5 ±0.01 g of the lotion was weighed in a 100 ml beaker and dissolved in 45.0 ml of distilled water and dispersed the lotion in it. The pH of lotion was measured at 27ousing the pH meter[15].

Smoothness

The smoothness of the lotion formulation was tested by rubbing between the fingers and observes whether the lotion is smooth, clumped, and homogenous or rough[17]

Irritancy test

The formulated lotion shows no redness, edema, irritation and inflammation during studies. The formulated cream is safe to use[14].

Result and Discussion

Plants are one of the most important parts of phyto medicine and these medicines are obtained from various parts of the plants. Pharmacological understanding of various chemical and active constituents as well as primary and secondary metabolites is very important for diagnosis and treatment for many diseases for health workers. On the basis of ethno botanical studies *Embelia ribes* seeds were selected and formulation development and evaluation were performed.

Physiochemical Parameters of extract Evaluation

Ash values:

Ash value determination is a very important tool to access the quality of herbal raw material; higher ash value is an indication of adulteration and improper processing of raw material. The percentage variation of the weight of dust in certain drugs indicates a change in quality. Total ash determines the impurities which present in the drug. Other type of ash also reflects the amount of impurities present in the selected crude drug Result of the ash values are shown in Table No 3

Extractive values: Extractive value determinations tell us the amount of phytoconstituents which is present in the medicinal plant. Under a given set of conditions theses values varies within a narrow limit and hence can be set as an in-house standard for routinely used drugs. These values can also tell us about the adulteration of crude drug as it will yield low extractive values. The results of the extractive values are shown in Table No 3

Swelling Index: The swelling index is defined as the volume in ml taken up by the swelling of 1 g of herbal material under specified conditions. Its determination is based on the addition of water or a swelling agent as specified in the test procedure for each individual herbal material. The results of the Swelling Index are shown in Table No 3

Foaming Index: Many herbal materials contain saponins that can cause persistent foam when an aqueous decoction is shaken. The foaming ability of an aqueous decoction of herbal materials and their extracts is measured in terms of a foaming index. The plant extract /material containing saponins is evaluated by measuring the foaming ability in terms of foaming index. The results of the Foaming Index are shown in Table No 3**.**

Table No 3: Physiochemical Parameter

S No	Physiochemical Parameters	Result
1.	Ash value	20.39%
2.	Swelling index	1.5 g
3.	Forming index	<100
4. Extractive value		
4.1	Water extract	0.30 g
4.2	Ethanol extract	0.51 g

Table No 04 - Phytochemical screening of extract

S. No	Phytochemical	Methanolic extract of E. Ribes seeds
1.	Alkaloids	Absent
2.	Flavonoids	Present
3.	Carbohydrate	Present
4.	Saponins	Present
5.	Tannins	Absent
6.	Resins	Absent
7.	Phenolic compound	Present

Phytochemical Screening:

Plants are known to contain various primary metabolites like sugar, fats which are used by animals and humans. They also contain many secondary metabolites which show certain physiological effects. Qualitative phytochemical test were perform on selected plants parts which shown presence of various metabolites. Selected seed were undergone for chemical test and results are shown in Table No 4.

Lotion is a low-viscosity topical preparation intended for application to the skin. By contrast, creams and gels have higher viscosity, typically due to lower water content. The current investigation was carried out to formulate and evaluate herbal lotion of selected seed which is *Embelia Ribes* .The physicochemical characteristics were investigated, and the lotion were evaluated for spreadability, consistency, wash ability, smoothness and other parameter which shown in table no 5

Evaluation Parameters of Lotion:

Table No 05 - Evaluation Parameters of Lotion

S No.	Characteristics	Formulation
1.	Colour	Brownish red
2.	Odour	Peppermint like
3.	Spreadibility	8.3
4.	Washability	Easily washable by normal water
5.	Homogeneity	Homogeneous in nature
6.	Absorbency	Moderated
7.	Viscosity	3.7 Poise
8.	PH	5.6
9.	Smoothness	Smooth
10.	Consistency	Grease
11.	Irritation	No irritation

Conclusion

The skin is a very important organ of human body which covers approx 20 square feet of human body. The skin provides defensive mechanism for body against various microbes infection and elements. It regulates body temperature.

Lotion is a low-viscosity topical preparation intended for application to the skin. By contrast, creams and gels have higher viscosity, typically due to lower water content

Seed of *Embellia ribes* were collected from local market of Jaipur. The seed were shade dried using tray under controlled temperature. Seeds were

then converted in powder by the help of grinding mill and powder was store in polythene bags which free from microbes

The seeds of *Embelia ribes* having various pharmacological activity & the constituents are so significant to produce such activity. Review literature shows that there are tremendous pharmacological activities available in the selected plants and Formulation such as lotion are very useful in such activity.

In future there is a scope for some new formulation development such as poly herbal formulation & identification of some new biological activity in plant.

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