



Research Article

FORMULATION AND EVALUATION OF POLYHERBAL OINTMENT COMPRISING *HARIDRA*, *MANJISTHA* AND *MOCHARASA*

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KEYWORDS: *Haridra*, *Manjistha*, *Mocharasa*, Polyherbal ointment, Cosmetic.

ABSTRACT

Even in areas where modern medicine is available, the interest on herbal medicines and their utilization have been increasing rapidly in recent years. Herbal formulations have recently attracted the interest towards versatile application as bioactive components of plants are natural source of medicines to heal various ailments. Herbal cosmetics are formulated, using different ingredients to form the base in which one or more herbal ingredients are used to cure various skin ailments. The present work is to formulate and evaluate the polyherbal ointment comprising *Haridra* (*Curcuma longa*), *Manjistha* (*Rubia cordifolia*) and *Mocharasa* (exudate from *Salmali malabarica*). These drugs have antibacterial, anti-inflammatory, antiseptic, antioxidant, wound healing properties etc. The aqueous extracts were prepared by using traditional method of maceration and *Ghana kalpana*. The neutral ointment base was prepared and formulation of ointment was done by incorporating the Ghana /extract in the base by Levigation process. Different trials in different proportion of extract and base were performed to obtain stable formulation by levigation and trituration method. Obtained stable formulation was evaluated for its Organoleptic Characters, physicochemical properties like state, color, odor, touch, ease of removal, pH, spreadability, solubility, Loss on Drying, Total ash, Water soluble extractive, Alcohol soluble extract. In toxicological Evaluation, determination of Heavy Metals and Microbial Analysis was done. In these studies, results are obtained within permissible limits and successful stable composition of extracts and base shows synergistic action and there was no evidence of phase separation or irritation and is safe for local application on skin.

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INTRODUCTION

Ayurveda is one of the best traditional medicine system serving the human being for every problem of life and have important role in bio-prospecting of new medicines. The interest on herbal medicines and their utilization have been increasing rapidly in recent years. Plant derived herbal formulations have recently attracted the interest towards their versatile application as bioactive components of plants are natural source of medicines to heal various ailments used traditionally as well as in modern perspective. Skin is good topographical indication of healthy state of person (physical as well as mental) and beauty manifest through complexion of skin.⁽¹⁻³⁾ Cosmetics have important place in every women's life since ancient times. Nature provides plants as a resource to develop new drugs in herbal cosmeceutical and pharmaceutical applications. Cosmetic products are used to protect skin against exogenous harmful agents and enhance the color and texture of skin.⁽⁴⁾ Cosmeceuticals are the fastest growing segment in skin care market in present era. The market research shows upward trend in herbal trade due to lesser or no side effects along with skin friendliness.

Herbal cosmetic industry are playing major role to meet this worldwide demand. Herbal cosmetics are products in which herbs are used in crude or extract form. Herbal cosmetics are formulated, using different ingredients to form the base in which one or more herbal ingredients are used to provide cosmetic benefits in various skin ailments. They does not cure the disease but provide the conditions for proper functioning of body.^(5,6) Cosmeceuticals is the combination of "cosmetic" and "pharmaceutics" and defined as cosmetic-pharmaceutical hybrids intended to enhance health and beauty through ingredients that influence the skin's biological texture and function. Cosmeceuticals are serving as a bridge between personal care products and pharmaceuticals.⁽⁷⁾ Benefits and Action of Herbal Cosmeceutical Product:⁽⁷⁾

1. Natural ingredients are compatible with all types of skin.
2. Availability of wide range of plants which can be used to derive new type of products.
3. Affordable and low cost effective due to easy availability of plants.
4. Skin friendliness and no side effects.

5. Only Laboratory testing by expert is required and no need of acute and chronic toxicity study on animals.
6. Rising demand in market for herbal products.

The synthetic or natural ingredients present in skin care formulation that supports the health, texture and integrity of skin, moisturizing, maintains elasticity of skin by reduction of type I collagen and protection against UV radiation etc. This property of cosmetic is due to presence of ingredients in skin care formulation, because it helps to reduce the production of free radicals in skin and manage the skin properties for long time. The cosmetic products are the best choice to reduce skin disorders such as hyper pigmentation, skin aging, skin wrinkling, rough skin texture etc. Properties which helps in cosmetic action are antioxidant, antiseptic, emollient, anti-inflammatory, antifungal, antibacterial etc. Selection of the drugs to form poly herbal cosmetic is based on their properties as described in Ayurvedic literature and therapeutic uses based on pharmacological activity on skin.^(6,7)

Properties and Action in Ayurveda^(8,9,10)

Haridra⁽⁸⁾

Rasa : Tikta, Katu

Guna : Ruksha

Virya : Usna

Vipaka : Katu

Karma: Kaphapittanut, Vishaghna, Varnya, Kusthaghna, Krimighna,

Manjistha⁽⁹⁾

Rasa : Kashya, Tikta, Madhura

Guna : Guru

Virya : Usna

Vipaka : Katu

Karma: Kaphapittasamaka, Varnya, Visaghna, Sothaghna, Kusthaghna, Krimighna, Stambhana, Rasayana, Shoiditasthapana

Mocharasa⁽¹⁰⁾

Rasa: Madhur, Kashya

Guna : Laghu, Snigdha, Picchila

Virya : Sita

Vipika : Madhura

Karma: Sothahara, Daah prasamana, Pittahara, Vatahara, Kaphavardhaka, Stambhan

In **Charak Samhita**, *Haridra* is used in *Kustha* for both internal and external uses.⁽¹¹⁾ *Vrana Cihkita*, *Ropana Karma*, *Varnya Karma*, *Sothhara* etc.

In **Sushruta Samhita**⁽¹²⁾ Therapeutically used for *Vrana Sodhan*, *Ropana*, *Sansaman*, *Nadi Vrana*, *Netra Roga*, *Jwara*, *Kustha*, *Visarpa*, *Vyanga*, *Neelika*, *Stana Dosh*.

In **Chakradutta** *Haridra* is advised as best medicine for *Sheetpitta* and other skin disorders like *Kustha*, *Kandu*, *Udarad*. It is one of drug for *Raktasodhana*, *Raktavardhan* and *Raktasthambhan*.⁽¹³⁾

In **Sharangdhara Samhita**⁽¹⁴⁾ *Vyanga*, *Kustha*, *Dadru*, *Pama*, *Nadi Vrana*, *Sotha*, *Jwara*, *Prameha*, *Netra Roga*, *Siroroga*.

In *Yoga Ratnakar*, (17th cent AD)⁽¹⁵⁾ *Haridra* is used in *Shudra Roga* like *Arunshika*, *Vayanga*, *Neelika*, *Tila* There is extensive use of *Curcuma longa* (Turmeric) as a spice, food preservatives and coloring agent since ancient times. The plant has been in traditional use and

in Ayurvedic literature and it is mentioned as a remedy for various disease related to skin and others. medicine. Active constituents are flavanoid curcumin (diferuloylmethane) and various volatile oils including tumerone, atlantone, zinziberone. The major chemical constituents are curcuminoids (apprx.6%) the yellow colouring principle curcumin constitutes 50-60%, essential oil (2-7%) with high content of bisabolane derivatives. The minor component include desmethoxy curcumin, bidesmethoxycurcumin, dihydrocurcumin, phytosterols, fatty acid, polysaccharides.^(16,17) Other constituents are sugar, protein, resin etc. For the last few decades, research work have been establish the pharmacological potential of turmeric and its extracts. Some of them include anti-inflammatory, wound healing, antibacterial, antifungal, antioxidant, anti-melanogenic, free-radical scavenging activity, anti-tumor, anti-cancer, anti-repellent, antussive, antidiabetic, antiulcer and antinephrotoxic activity. Safety evaluation studies explained the well tolerance of high doses of curcumin and *Haridra* without any toxic effect. ^(17,18)

2. Manjistha

In **Charak Samhita**⁽¹¹⁾, Therapeutically used internally and externally in *Kustha*, *Kilasa*, *Rakta Srava*, *Raktapitta*, *Rakta Atisara*, *Yoni Roga*, *Rajo Dosh*, *Yoni Srava*, *Vata Vyadhi*, *Vata Rakta*, *Prameha*, *Visha*.

In **Sushruta Samhita**,⁽¹²⁾ *Pitta Saamak*, *Vrana*, *Dagdha*, *Kustha*, *Vidradhi* for internal and external uses.

In **Astangh Hridya**,⁽¹⁹⁾ For internal and external uses, *Vata Roga*, *Yoni Roga*, *Rajo Roga*, *Garbhasravahar*, *Rakta Atisar*, *Kustha*, *Kustha*, *Visarpa*, *Vidradhi*, *Daah*, *Soph*, *Dehavardhan*, *Neelika*, *Vyanga*.

In **Sarangdhara Samhita**,⁽¹⁴⁾ *Kustha*, *Pama*, *Dadru*, *Jwara*, *Vatarakta*, *Nadi Vrana*, *Vyanga*, *Vidradhi*, *Visarpa*.

In *Yoga Ratnakar*, ⁽¹⁵⁾ External application in the form of oil for *Vyanga*, *Nilika*, *Tila*, *Mukha Prasad*.

Action of Manjistha⁽²⁰⁻²²⁾: The root is Sweet, Bitter, Acrid, Astringent, Alterative, Thermogenic, Antidysentric, Anti-inflammatory, Antitussive, Expectorant, Antipyretic, Analgesic, Anodyne, Anthelmintic, Antiseptic, Diuretic, Galactopurifier, Febrifuge, Emmenagogue, Styptic, Rejuvenating and Tonic.

Pharmacological property⁽²⁰⁻²²⁾: Blood purifier, Anti-oxidant, wound healing, immunomodulator, Analgesic, Diuretic, Gastro protective and Hepatoprotective.

Chemical Constituents: Rubiofolic acid, Rubicoumaric acid, Ruberythric acid, Rubuanin, Purpurin, pseudo purpurin, xanthopurpurin, manjisthin, Naphthoquinones, Naphthohydroquinones, six Anthraquinones, Free alizarin and its glucoside, oleanolic acid acetate, β -sitosterol scopoletol, glucosides, flavonoids, phenols and saponin. ⁽²⁰⁻²³⁾

3. Mocharasa ⁽²³⁻²⁹⁾

Properties are described as *Hima* (Cooling Nature), *Grahi* (Binding Nature), *Snigdha* (Sticky), *Vrishya* (Aphrodisiac), *Kashaya* (Astringent Action).

Therapeutically indicated in *Vrana*, *Rakta pitta*, *Daaha*, *Rakta arsa*, *Rakta srava*, *Grahni*, *Urusthambha*, *Yonidosha*, *Raajo dosha*, *Yoni srava*, *Yoni Picchila* in *Charak Samhita* for external and internal use. As content of *Pichha Basti*

used in *Pravahika*, *Gudbhransa*, *Raktaashrava*, *Jwaranashak*, *Rakta-Aarsa* due to styptic action.

Acharya Chaakra Dutt indicated its internal use in all types of *Atisaara* and also as a content of *Bilwaadi churna*, *Kutajastak avhleha*.

In **Sarangdhara Samhita**, *Kustha*, *Pama*, *Dadru*, *Jwara*, *Vatarakta*, *Nadi Vrana*, *Vyanga*, *Vidradhi*, *Visarpa*. In *Saarsha*, For *Pichha basti - Mocharasa* is used as content.

In **Yoga Ratnakar**, indicated for *Sheetali vikar*, *Masurika chikitsa*.

MATERIAL AND METHODS⁽⁴⁸⁾

Procurement of drugs: sample A (Original) - Genuine sample of rhizome of *Haridra* was collected from cultivated area of our city (Hardwar –Uttarakhand) in Jan-Feb month (season of collection) and raw form is used for making drug preparation. *Mochrasa* will be collected from trees of *Salmali* widely grown in Hardwar region of Uttarakhand by making deeper incision on bark of tree penetrating to cortex through which resin exudates in form of liquid then solidify due to atmospheric temperature. *Manjistha* stem will be collected from nearby hills of *Shivalik* ranges of Uttarakhand (Surkanda Devi hills).

Fresh Raw material was collected from the authentic sources as market samples are adulterated and lacks active desired constituents.

Sample B: Market samples from region of Hardwar were taken and identified from Pharmacognosy Deptt. (Dravyaguna Dept.) of Rishikul Campus, Hardwar

Sample C: Extracts of all drugs were purchased from Phytochemical Industries, New Delhi.

Preparation of Extract / Ghana :

All of three Drugs in course powdered form (*Yava kuta*) was used for the formation of water soluble extract dipped into water which is 8 times or 16 times of the sample's weight taken and soaked overnight to obtain

water soluble extract for *Kwath* formation through maceration process. On the basis of Basic principle of *Kwath* preparation, *Ghana* (aqueous extract) formed of three drugs as follows:

Ghana Formation: Drugs of sample -A and sample- B are taken separately and similar process was followed as described. Drugs are soaked overnight and strained out. Water containing water soluble portion of drug is filtered and collected. Filtered portion reduced to ¼ on medium heat and temperature not exceeds above 100 °C. To obtain the *Ghana* form, ¼ reduced *Kwath* again reduced to semi- solid form with continuous stirring on low flame at about temp of 60° C under water-bath steam to prevent over heating (*Khar paaka*). Extracts were then concentrated to dryness under reduced pressure and controlled temperature and preserved for further use. (shown in figure. Dried Ghana of drugs)

Formulation of Ointment: (Figure 1.)

Oil in water (O/W) emulsion –based ointment (semisolid formulation) was formulated after various trials in different proportion of base and extracts to obtain compatible and stable formulation by levigation and trituration method. Paraffin wax was heated to 60 °C and melted to obtain oil phase. To prepare aqueous phase, *Ghana* of *Curcuma longa*, *Rubia cordifolia* and resin of *Salmali* (*Mochrasa*) are dissolved well in water in equal proportion and heated upto 60 °C. After heating, the aqueous phase was added in portions to the oil phase with continuous stirring and levigation process (Simple Fusion method of grating in pestle and mortar to prepare emulsion, suspension ointment, and to get fine uniform particles).

Various Trials

For trials, sample various proportions of *Ghana* of raw drugs used with neutral base of paraffin wax. Table no.1 (Figures showing trials).

Table 1: Formulation Trials (In Figures)

Ghana	Trial 1- sample A	Trial 2- sample A	Trial 3- sample A	Trial 4- sample B	Trial 1- sample C
Aqueous phase					
1. <i>Haridra Ghana</i>	1gm	1gm	1gm	1gm	1gm
2. <i>Manjistha Ghana</i>	1gm	1gm	1gm	1gm	1gm
3. <i>Mochrasa Ghana</i>	1gm	1gm	1gm	1gm	1gm
Oil Phase					
Paraffin wax (Solid)	3gm	5gm	8gm	8gm	5gm
Paraffin wax (Liquid)	3ml	5ml	8ml	8ml	5ml

Table 2: Observation, result and inference

Trial	1-sample A	2-sample A	3-sample A	4-sample B	5-sample C
Observation	<ul style="list-style-type: none"> No phase separation But poor consistency Aromatic smell Blackish brown color in liquid form 	<ul style="list-style-type: none"> No phase separation good consistency Good aromatic smell Brown colored semisolid form 	<ul style="list-style-type: none"> Complete Phase separation 	<ul style="list-style-type: none"> Slight phase separation Consistency - fine Less aromatic in Smell Light brown color 	<ul style="list-style-type: none"> phase separation Consistency liquid form Less aromatic Bright yellowish color
Result	Incompatible formulation	Compatible formulation	Incompatible formulation	Compatible formulation but less potent	Incompatible formulation
Inference	Cannot be used for local application	Used for local application	Can be used for local application	Can be used for local application	Cannot be used for local application

Evaluation of successful trial formulation

Organoleptic Evaluation: The obtained formulation was evaluated for its organoleptic properties like color, odour and state. The appearance of ointment was judged by its color, roughness and state. (Figure. 1) Results are listed below in Table no.3.

Table 3: Organoleptic Evaluation

Physical appearance	Semisolid
Color	Brown
Odour	Aromatic smell
Homogeneity	Homogenous
Touch/after feel	Emollient, Smooth and slippery
Ease of removal	Slightly oily

Type of film : After application of ointment, type of film or smear formed were checked.

Irritancy test: Mark an area on left dorsal surface. The ointment was applied to specific area and time was noted. Irritancy, erythema, odema was checked if any for regular intervals upto 24hrs and reported.

Table 4: Physiochemical evaluation

S. No.	Test Parameter	Result
1.	Loss on Drying	43.81%w/w
2.	Total Ash	2.64 %w/w
3.	Acid insoluble ash	1.26 %w/w
4.	Water soluble extractive	6.08 %w/w
5.	Alcohol soluble extract	18.18 %w/w
6.	pH of 1 % aq. Solution	5.84 %w/w

Evaluation of ointment pH: The Ph meter was calibrated using standard buffer solution. About 0.5gm of ointment was weight and dissolved in distilled water and its pH was measured.

Evaluation of Alcohol Soluble Extractive

5 gm. of the air dried drug was taken, coarsely powdered and macerated with 100 ml. of alcohol of specified strength in a closed flask for twenty-four hour, shaking frequently during six hours and allowed standing for eighteen hour. It was rapidly filtered; taking precautions against loss of solvent, 25 ml of the filtrate was evaporated to dryness in a tarred flat bottomed shallow dish, and dried at 105^o to constant weight and weighed. The percentage of alcohol-soluble extractive with reference to the air-dried drug was calculated.

Evaluation of Water Soluble Extractive

Proceed as directed for the determination of alcohol-soluble extractive, using distilled water instead of ethanol.

Evaluation of Total Ash

The total ash method is designed to measure the total amount of material remaining after ignition. This include both physiological ash which is derived from the raw drug and non-physiological ash which is the residue of the extraneous matter (e.g. sand and soil) adhering to plant surface. Silica Crucible was cleaned, dried well and labelled with glass pencils and then weighed to constant weight. 5 gm of powdered drug sample was put in the Silica crucible. The drug was spread evenly in to a thin layer. This crucible was placed in a muffle furnace and ignited at a temperature of 450°C for about 6 hrs or more until the ash was totally free from Carbon. The crucible containing the ash was allowed to be cooled in

desiccators and subsequently weighed to constant weight. The percentage of ash with reference to the air dried drug was calculated.

Evaluation of acid insoluble Ash

The total ash (Prepared by previous method) was boiled with 25 ml of 2M hydrochloric acid for 5 minutes and the insoluble matter was collected in a Gooch crucible or on an ash less filter paper, washed with hot water, ignited, cooled in a desiccator and weighed. The percentage of acid - insoluble ash with reference to the air-dried drug was calculated.

Evaluation of Microbial Contamination

The formulated ointment were inoculated on the plates of Muller Hinton agar media by streak plate method and a control was prepared by omitting the ointment. The plate were placed into the incubated at 37^o C for 24hrs. After the incubation period, plates were taken out and checked the microbial growth by comparing it with the control. Results are listed below in table no.5.

Table 5: Microbial Contamination

Total Bacterial Count	TMC X 10 ³	NMT 10 ⁵ cfu/g
Total Yeast and mould count	TMC X 10 ²	NMT 10 ³ cfu/g
<i>E. coli</i>	Absent	Absent /g
<i>S. aureus</i>	Absent	Absent /g
<i>P. aeruginosa</i>	Absent	Absent /g
<i>Salmonella spp.</i>	Absent	Absent /g

Limit tests: *E. coli*, *S. aureus*, *P. aeruginosa*, *Salmonella spp.*- No characteristic colonies complies and are within permissible limit (NMT-not more than).

Heavy Metal Contamination⁽⁴⁸⁾**As per WHO /FDA Norms****Table 6: Metal Analysis**

1.	Lead	8.50 ppm	10.0 ppm
2.	Cadmium	<0.01 ppm	0.3 ppm
3.	Arsenic	<0.50 ppm	3.0 ppm
4.	Mercury	0.37 ppm	1.0 ppm

DISCUSSION**Mode of Action**

Curcuma longa, *Rubia cordifolia* and *Mocharasa* are well known drugs for their medicinal and cosmeceuticals value in traditional system of medicine. *Haridra* and *Manjistha* are also known as coloring agent or dye in ancient times. These drugs have pharmacological properties like anti-inflammatory, antibacterial, antifungal, wound healing, haemostyptic, antiallergic, skin protective, anti oxidant and blood purifying action which are well proved in various in vitro and in vivo researches and are well documented like Curcumin possess ability to protect the skin from harmful UV-induced effects by antimutagen, antioxidant, free radical scavenging, anti-inflammatory and anti-carcinogenic property.⁽³⁰⁻³⁸⁾ *Manjistha* acts as Blood purifier, Anti-oxidant, wound healing, immunomodulator, Analgesic, Diuretic, Gastroprotective, Hepatoprotective and Nephroprotective.⁽³⁸⁻⁴⁴⁾

So efficacy of these drugs can be observed to evolve new polyherbal ointment to improve quality of life and to cure disease which is prime motto of human

being since beginning of life will be come true. These drugs acts by virtue of *Kandughana*, *Kusthaghna*, *Varnya*, *Vishgna*, *Twachya*, *Sothhara*, *Sandhaniya*, *Twak doshhar*, *Pitta shamak*, *Vatakaphnutta* properties well described in various literatures of Ayurveda. *Haridra* and *Manjistha* prevents itching via *Kandughana* and *Krimighna* action and also prevents from fungal, bacterial and other secondary infection. These helps to remove *Sotha* (odema) by *Sothar* property (anti-inflammatory) and helps in wound healing by *Vrana ropana* action and binds the organic tissues with astringent property and maintains the tone, turgidity. *Manjistha* is able to bind with *Amavisha* (free radicals) and *Garavisha* (xenobiotics) toxins which cause inflammation, skin disease, ulcers, and other problems. The complexion of skin and the pigmentation level of skin (*Varnya action*) maintained by *Haridra* and *Manjistha* both. *Snigdha*, *Picchila*, *Guru guna* of *Mocharasa* pacifies the *Vata dosha* (analgesic action) and provides hydration and strength to skin. *Mocharasa* maintains the hydration level and *Kashya rasa* (astringent properties) maintain tone of skin and *Guru guna* with *Tikta Rasa* causes *Sthirikaran* action (providing strength to collagen and elastic fibres of skin). *Kashaya Rasa* have best *Vran Ropak* property (wound healing). *Kledana* and *Snehana* (nourishment of skin) *Mochrasa* helps to maintain healthy skin and other factors also contributes to nature the skin and maintain its proper lustre and texture⁽⁴⁵⁻⁴⁷⁾. In the present work, it was decided to extract and formulate polyherbal cosmetic ointment which can be used in cases of itching, secondary infection, discoloration, hypopigmentation and to maintain tone of skin.

Formulation: There is minimum 10% yield was obtained from the raw herbs drugs after preparation of Ghana which contain all water soluble bioactive components of drugs. Particle size was reduced by making Ghana form and further through levigation process and ointment is ready for topical absorption. Extracts of all drugs (*Haridra*, *Manjistha* and *Mochrasa*) are taken in proportion of 3: 10 with neutral base of paraffin wax. Semisolid homogenous formulation is Brown colored due to presence of coloring agents/pigments like Curcumin of *Haridra* and Purpurin, Rubiadin of *Manjistha*. Volatile oils of *Manjistha* provides good aromatic smell. Emollient and soothing action provided by *Mochrasa*. Paraffin wax acts as vehicle or base for ointment.

Analysis: Testing is essential for acceptability of every raw material and finish product for better clinical significance. Physicochemical Evaluation, Physical Standard like Loss on Drying, total ash, water soluble extractive, alcohol soluble extract are done as per API methods. All physical standards of formulation are within permissible limits as per API guidelines. In toxicological and Microbiological Analysis for total viable aerobic bacterial and fungal counts are within permissible limits and absence of *E.coli*, *S.aureus*, *P. aeruginosa*, *Salmonella sp.* indicates safer local application of ointment directs for topical use. Presence of Heavy Metals within permissible limits indicates there is presence of mild heavy metals in soil by virtue from

which drug is collected for preparations but safe to use because presence of heavy metals more than upper limit in any cosmeceutical can cause cancer and develops toxicity on continuous dermal exposure. (Bocca et al., 2007, Lilley et al., 1988) Out of all, lead is in maximum quantity and cadmium and arsenic in fewer quantity. There is no irritation was observed in the form of erythema or odema.

RESULTS

A homogenous brown colored aromatic formulation was produced with uniform distribution of extracts of *Haridra*, *Manjistha* and *Mochrasa* on skin which is confirmed by visual appearance. There was no phase separation when kept for long time and no color change was observed therefore formulation was stable. It was free from microbial contamination proved by negative results on microbial testing due to presence of antibacterial and antifungal components of *Manjistha* and *Haridra* and acts as additional preservatives. On application of ointment, after feel is smooth, slippery due to *Mocharasa* and amount of residue left after the application of fixed amount of ointment and type of smear formed on skin were slightly oily. After removal of cream washing with water it can be easily removed and have better compliance. The prepared polyherbal ointment was o/w type emulsion. The pH of ointment was found to in range of be 5.84 which is good for skin. There was no irritancy like odema, erythema etc. on application on skin and no heavy metal contamination indicates safer use. Hence proves it as a valuable gift of nature in the market of herbal cosmetic.

CONCLUSION

From above discussion it is concluded that on combining the extracts of *Haridra*, *Manjistha* and *Mocharasa* in different ration to get multipurpose effect like *Vrana ropana* (wound healing), *Krimighana* (antiseptic, antibacterial, antifungal), *Kandughana* (antiallergic-antihistaminic), *Kusthaghana* (skin protective), *Varnaya* (skin complexion enhancer), *Vishagna* (antioxidant), *Sandhaniya* (healing or binding), *Sthambhan* (astringent) action to prevent infection, maintain texture, color, luster and health of skin. As we know that it is not possible to increase the extent of efficiency of medicinal and cosmetic property of single plant but by combining the different plant extracts potency of formulation raised and have synergistic cosmeceutical effect on skin compared to single extracts. Further research will be carried out to check synergistic action of selected formulation. The present study suggest that composition of extract and base had constant pH, homogenous, aromatic and emollient. Formulation was safe to use as lacks microbial contamination, Heavy metal contamination and any type of irritancy in respect of skin irritation and allergic sensitization.

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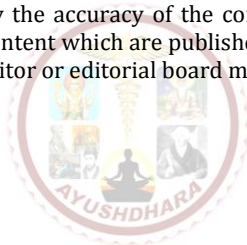
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Formulation and Evaluation of Polyherbal Ointment Comprising Haridra, Manjistha And Mochrasa - Pictures



Fig no.1. Prepared Polyherbal Formulation Trial 1. Sample A

Trial 2 Sample A



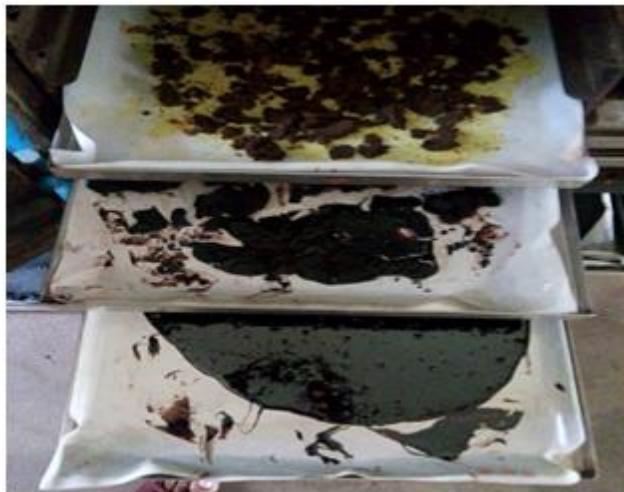
Trial 1 Sample C



Trial 3 Sample A



Trial 4 Sample B



Dried Ghana of Drugs (*Haridra, Manjistha and Mocharasa*)