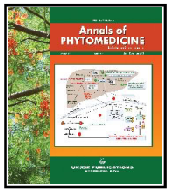
Annals of Phytomedicine 12(2): 860-865, 2023

DOI: http://dx.doi.org/10.54085/ap.2023.12.2.101

Annals of Phytomedicine: An International Journal
http://www.ukaazpublications.com/publications/index.php

Print ISSN : 2278-9839 Online ISSN : 2393-9885



Original Article : Open Access

Formulation and evaluation of an ayurvedic face pack, Manjishtadi mukhalepa for therapeutic and cosmetic purposes

Vidyavathi Hiremath◆, B. Kothainayagi*, Anupam Sharma, Supriya Gupta and Allam Ramakrishna*

The Faculty of Indian Medical System (FIMS), SGT University, Gurugram-122505, Haryana, India

**Sri Sairam Ayurveda Medical College and Research Centre, Chennai-600044, Tamilnadu, India*

Article Info

Article history
Received 1 November 2023
Revised 12 December 2023
Accepted 13 December 2023
Published Online 30 December 2023

Keywords
Face pack
Mukhalepa
Varnya
Complexion
Acne

Abstract

Since ancient times, people have been aware of the utility of natural herbs for cosmetic purposes. Cosmetics are products that are used to clean, beautify, and promote an attractive appearance. This study is aimed at formulating and evaluating a polyherbal face pack for therapeutic and cosmetic purposes. The ingredients used in this formulation are: *Rubia cordifolia* (Manjistha), *Symplocos racemosa* (Lodhra), *Buchanania lattifolia* (Priyala), *Shalmalia malabarica* (Shalmali), *Fuller's earth* (Multanimitti), *Azadirachta indica* (Nimba patra), *Berberis aristata* (Daruharidra), *Curcuma longa* (Haridra), *Lens culinaris* (Masoor dal), *Pterocarpus santalinus* (Rakta chandana) and *Butea monosperma* (Palash). The face pack was assessed using various evaluation criteria, and the findings showed that it was in the standards.

1. Introduction

Skin constitutes the major part of the body which reflects the health of an individual. According to Ayurveda, skin manifestations are due to vitiation of blood (Rakth dosha). The accumulated toxins in the blood due to improper food and lifestyle (Viruddha aahara and vihara) lead to skin-related diseases like blackheads, pimples, acne, and loss of luster /glow. In classical texts, there is mention of the group drugs that improve the complexion of the skin (Varnya mahakashaya), which are useful for the purification of blood, improvement of the skin glow, maintaining elasticity, *etc.* (Sharma and Dash, 2022).

The application of the paste over the face prepared by the powder (Churna) with the appropriate vehicle is called "Mukhalepa". The same in parlours is called a facial pack. The medicines in the form of a paste that is used for external applications are called lepas (Tharkral, 2016). The luster of the skin of each individual varies along with seasonal variations. Face pack (Mukhalepa) helps to fulfil the requirement of healthy and glowing skin.

Skin prevents invasion of microorganisms, toxins, and foreign substances in the body by active as the largest protective barrier in the body. Hence, there is a great demand for herbal face packs due to the purity of the natural herbs and least side effects. Enhancing the skin's smoothness, tone, and fairness while promoting proper circulation of blood are the key components of a very good herbal face pack. Simultaneously reducing pimples, acne, wrinkles, and dark circles along with healing, cleansing, antiseptic and astringent properties.

Corresponding author: Dr. Vidyavathi Hiremath
Department of Dravyaguna, FIMS, SGT University, Gurugram-122505, Haryana, India
E-mail: vidyahiremath2003@gmail.com
Tel.: +91-7011739589

Herbal face packs are currently in use all over the world because of their many advantages over chemical-based packs. These herbal face packs contain no additional preservatives and are non-toxic or allergenic (Sunita *et al*., 2023). These are simple to prepare and keep for a long period. The standardization of the polyherbal formulation is the subject of the present research article.

2. Material and Methods

2.1 Procurement of ingredients

All the ingredients procured from the local market for the formulation of the polyherbal face pack were cleaned properly, then dried in the shade, and powdered accordingly for further purposes. The ayurvedic face pack (Manjishtadi mukhalepa) contains 11 ingredients (Table 1) and their pharmacodynamic properties are mentioned in Table 2.

2.2 Method of preparation

Each drug mentioned in Table 1 was powdered separately and sieved using #120 mesh. Each of them weighed accurately (Table 3) and mixed geometrically for uniformity of the formulation. Then the prepared face pack was stored in an air-tight container for various evaluation parameters.

3. Results

3.1 Morphological evaluation

The product was evaluated by its colour, appearance, odour, touch, etc., and is listed in below Table 4 (Anonymous, 1999a; Avinash *et al*., 2019).

3.2 Physicochemical evaluation

Various physicochemical parameters of determination based on the Ayurvedic Pharmacopoeia of India like pH, loss on drying, ash content, total viable content, *E. coli,* and *P. aeruginosa*. The results are mentioned in Table 5 (Anonymous, 1999b).

Table 1: List of ingredients with botanical names, and their phytochemical composition

S. No.	Name of the drug	Botanical name	Phytochemicals	References
1.	Manjistha	*Rubia cordifolia*	Anthraquinone	Isha *et al*., 2021
2.	Lodhra	*Symplocos racemosa*	Symposide, loutrine, loturidine, colloturine	Monika *et al*., 2022
3.	Priyala	*Buchanania lattifolia*	Kaempferol	Puliyur and Smitha, 2021
4.	Shalmali	*Shalmalia malabarica*	Gallic and tannic acid, lupeol	Bishnupriya *et al*., 2021
5.	Nimba patra	*Azadirachta indica*	Azadirachtin, azadirone, nimbzndiol	Yatish *et al*., 2019; Naba *et al*., 2021
6.	Daruharidra	*Berberis aristata*	Berberine, karachine	Shailja *et al*., 2021
7.	Haridra	*Curcuma longa*	Curcumene, curdione, camphor, curcumins, beta-sitosterols	Huddar *et al*., 2023
8.	Palash	*Butea monosperma*	Butin, isocorcopsin, butein	Pravina *et al*., 2016
9.	Multanimitti	Calcium bentonite	Hydrous aluminium silicates, montmorillonite, kaolinite and attapulgite	Lekha and Muralidharan, 2021
10.	Masoor dal	*Lens culinaris*	Protein, carbohydrate, vitamin B and manganese	Pritil *et al*., 2021
11.	Rakta Chandana	*Pterocarpus santalinus*	Pterocarpol, santalin, homopterocarpin, lupenediol	Kumar and Kumar, 2018

Table 2: The pharmacodynamic properties of the ingredients

S. No.	Name of the drug	Taste (Rasa)	Quality (Guna)	Biotransformation (Vipaka)	Potency (Virya)	Action (Karma)
1.	*Rubia cordifolia*	Sweet and bitter	Heavy	Pungent	Hot	Mitigates pitta and kapha
2.	*Symplocos racemosa*	Astringent and bitter	Light, dry	Pungent	Cold	Mitigates kapha and pitta
3.	*Buchanania lattifolia*	Sweet	Unctuous, heavy, laxative	Sweet	Cold	Mitigates vata and pitta
4.	*Shalmalia malabarica*	Astringent and bitter	Light, unctuous	Sweet	Cold	Mitigates kapha and vata
5.	*Azadirachta indica*	Bitter and astringent	Light, dry	Pungent	Cold	Mitigates kapha
6.	*Berberis aristata*	Bitter and astringent	Light, dry	Pungent	Hot	Mitigates kapha and pitta
7.	*Curcuma longa*	Bitter and pungent	Light, dry	Pungent	Hot	Mitigates kapha and vata
8.	*Butea monosperma*	Pungent, bitter, and astringent	Light, unctuous	Pungent	Hot	Mitigates vata and kapha
9.	*Lens culinaris*	Bitter and sweet	Heavy, dry	Pungent	Cold	Mitigates pitta
10.	*Pterocarpus santalinus*	Sweet	Light	Sweet	Cold	Mitigates tridosha
11.	Calcium bentonite	-	-	-	-	-

Source: Prakash and Harini (2021).

Figure 1: Ingredients of ayurvedic face pack (Manjishtadi mukhalepa).

Table 3: Composition of ayurvedic face pack

S. No.	Constituent	Part used	Ratio
1.	*Rubia cordifolia*	Root	1/5 part
2.	*Symplocos racemosa*	Bark	1/5 part
3.	*Buchanania lattifolia*	Seeds	1/5 part
4.	*Shalmalia malabarica*	Thorn	1/5 part
5.	*Azadirachta indica*	Leaves	1/5 part
6.	*Berberis aristata*	Bark	1/5 part
7.	*Butea monosperma*	Flower	1/5 part
8.	*Curcuma longa*	Rhizome	1/5 part
9.	*Pterocarpus santalinus*	Heartwood	1/5 part
10.	*Lens culinaris*	Seeds	1/5 part
11.	*Calcium bentonite*	Clay	1 part

Figure 2: Final ayurvedic face pack (Manjishtadi mukhalepa).

Table 4: Morphological evaluation

S. No.	Parameters	Observation
1.	Colour	Brown
2.	Appearance	Smooth
3.	Odour	Pleasant
4.	Texture	Fine

Table 5: Physicochemical evaluation

S. No.	Tests	Results
1.	Description	Brown coloured powder
2.	pH	7.26
3.	Loss on drying	3.78 w/w
4.	Ash content	91.2 w/w
5.	Microbial purity: Total viable count	192 cfu/g
6.	Gram-negative pathogen: *E. coli*	Absent/g
7.	Gram-negative pathogen: *P. aeruginosa*	Absent/g

3.3 Irritancy test

The prepared face pack was applied to the 1 sq. cm area marked on the dorsal surface of the left hand and kept under observation for irritancy, swelling, and redness, for an interval of up to 24 h. The observations are tabulated in Table 6 (Mandeep *et al.*, 2011).

Table 6: Irritancy test

S. No.	Parameters	Observations
1.	Irritancy	Not observed
2.	Redness	Not observed
3.	Swelling	Not observed

3.4 Stability test

The prepared polyherbal formulation was kept in different temperature conditions for 2 months at room temperature and 35ºC and evaluated for physical parameters like pH, colour odour, smoothness, and texture. The results are described in Table 7 (Rashmi *et al.*, 2017).

Table 7: Stability test

S. No.	Parameters	Room temperature	35°C
1.	pH	7.26	7.26
2.	Colour	No change	No change
3.	Texture	Fine	Fine
4.	Odour	No change	No change
5.	Smoothness	Smooth	Smooth

3.5 Method of application

This face pack (Mukhalepa) can be used in all seasons. Before applying the face pack, the face should be washed with water properly. According to the skin texture, the paste should be applied on oily skin and dry skin with particular solvents that as rose water and raw milk respectively. The care to be taken is that there should not be any lumps in the prepared paste. According to skin requirements, the face pack should be applied on alternative days. The application of the face pack should be uniform and allow it to dry. After it gets completely dried, the face should be washed with warm water gently. Do not scrub the face vigorously.

4. Discussion

There is a great demand for herbal formulations worldwide (Bhuvaneswari *et al.*, 2021). As skin of the face is a mirror reflecting the health of an individual. The face pack is used to rejuvenate the facial muscles, remove dead cells, maintain the elasticity of the skin, and improve blood circulation. The ayurvedic face pack (Manjishtadi mukhalepa) contains 11 ingredients, which are used in skin and other diseases.

Rubia cordifolia has been used as colouring agent since the beginning. In most of the classical texts, it is said to be useful to improve the colour and complexion of the skin and choice of drug for blood purifier antioxidant, anti-inflammatory, antistress, antimicrobial activity, which can play an important role in curing acne and improve skin health (Isha *et al.*, 2021; Ankita *et al.*, 2021). *Symplocos racemosa* is useful in skin diseases, nourishes the skin, and benefits acne, wrinkles, and other health issues related to the skin. It lightens skin colour, reduces skin irritation (Kumar *et al.*, 2011; Monika *et al.*, 2022). The seeds of *Buchanania lattifolia* are commonly called Chironji. It has therapeutic usage in bleeding disorders (Puliyur and Smitha, 2021). Charakacharya documented the styptic property and analgesic effects of *Shalmalia malabarica.* The thorns are used as a remedy for acne infestation (Bishnupriya *et al.*, 2021). Charakacharya mentioned *Azadirachta indica* under antipruritic drugs (Kandughna dravya) and indicated as an external application in skin diseases. *Berberis aristata* is a deciduous shrub up to 4 m high found in the Himalayas. The useful part is the root and it has the indications for skin disorders (Shailja *et al.*, 2021). *Curcuma longa* is an annual herb cultivated throughout India. The useful part is a rhizome, indicated for skin disorders, antihelmintic, and antipruritic (Huddar *et al.*, 2023; Mohammed *et al.*, 2021). *Lens culinaris* has a good amount of proteins. It is used to exfoliate dead skin, tighten the pores, brighten the skin, and remove tan which cleans the skin, softens it, nourishes it, and makes the skin oil free to prevent acne (Pritil *et al.*, 2021). *Pterocarpus santalinus* has medicinal values like anti-inflammatory, antihelmintic, and tonic; it is used in pitta disorders

(Kumar and Kumar, 2018). Fuller's earth (whiting clay, bleaching clay) helps the skin by removing whiteheads and blackheads, diminishing pore size, cleansing skin, soothing sunburns, and improving complexion, and blood circulation. It also helps in reducing blemishes and acne and gives a glowing effect. It helps to make skin radiant and excellent for aggravated and irritated skin which is rich in magnesium chloride (Hwang *et al*., 2012; Lekha and Muralidharan, 2021). *Butea monosperma* is a deciduous tree that grows up to 15 m high; it is used in antihelmintic conditions (Pravina *et al*., 2016).

This face pack helps with diseases like melisma (Vyanga), acne (Youvana pidaka), blackheads (Tilakalaka) and to remove scars and marks. It also restores the natural skin complexion (Varnyakaraka). Due to the effect of pollution and extreme climatic conditions which affect the skin very badly. Regular usage of this face pack will have a counteraction on the skin. In the current scenario, natural remedies are preferred more as they are safe with fewer side effects than synthetic ones.

5. Conclusion

In this work, an attempt has been made to formulate an ayurvedic face pack containing drugs such as *Rubia cordifolia* (Manjistha), *Symplocos racemosa* (Lodhra), *Buchanania lattifolia* (Priyala), *Shalmalia malabarica* (Shalmali), Fuller's earth (Multanimitti), *Azadirachta indica* (Nimba patra), *Berberis aristata* (Daruharidra), *Curcuma longa* (Haridra), *Lens culinaris* (Masoor dal), *Pterocarpus santalinus* (Rakta chandana) and *Butea monosperma* (Palash). The face pack was assessed using various evaluation criteria, and the findings showed that it was in the standards. It is found to have excellent properties with multiple therapeutic benefits. Further studies need to be performed to ascertain more useful benefits of face packs as cosmetics.

Conflict of interest

The authors declare no conflicts of interest relevant to this article.

References

Ankita, S.; Shardulya, S.; Abul, Q.; Manoj, K. P.; Raj, K. Om, P. C. and Shweta, S. (2021). *In vitro* propagation, callus culture and phytochemical profiling of Manjishtha: A invaluable medicinal species of Leh-Ladakh. Ann. Phytomed., **10**(1):230-241.

Anonymous (1999a). The Ayurvedic Pharmacopoeia of India, 1st Edition, Ministry of Health and Family Welfare, Govt. of India, Part I, Appendix-2, pp:214.

Anonymous. (1999b). The Ayurvedic Pharmacopoeia of India, 1st Edition, Ministry of Health and Family Welfare, Govt. of India, Part I, Appendix -2, pp:214.

Avinash, O. M.; Manisha, P. and Ashwin, D.W. (2019). Formulation and evaluation of herbal face pack for glowing skin. International Journal of Advances in Pharmaceutics, **8**(1):e518.

Bhuvaneswari, S.; Prabha, T.; Sameema, S. B.; Sivakumar, T.; Saranraj, P.; Manivannan, V. and Ashok K. B. (2021). Formulation and evaluation, comparison of herbal hair dye with marketed formulation. Ann. Phytomed., **10**(2):175-181.

Bishnupriya, M.; Anamika, B. and Mallika, N. (2021). Study of Shalmali kantak lepa in the management of Mukhadushika with special reference to acne vulgaris. International Journal of Research Publication and Reviews, **2**(11):236-239.

Huddar, H. S.; Anupkumar, E. and Jadhav, A. (2023). Classical review of Haridra (*Curcuma longa*). Journal of Ayurveda and Integrated Medical Sciences, **8**(4):122-127.

Hwang, J. K.; Shim, J. S.; Gwon, S. H.; Kwon, Y. Y. and Oh, H. I. (2012). Novel use of Panduratin derivatives or extract of *Kaempferia pandurata* comprising the same. U.S. Patent 0065272A1.

Isha, K.; Hemlata, K. and Gitika, C. (2021). *Rubia cordifolia* (Manjishtha): A review based upon its ayurvedic and medicinal uses. Himalayan Journal of Health Sciences, **6**(2):17-28.

Kumar, K.; Sasikanth, K.; Sabareesh, M. and Dorababu, N. (2011). Formulation and evaluation of diacerein cream. Asian J. Pharm and Cli. Res., **4**(2):93-98.

Kumar, B. S. and Kumar T. G. (2018). Therapeutic properties of Red sandal wood: A review. International Journal of Scientific Research and Reviews, **7**(3):1968-1972.

Lekha, D. and Muralidharan, N. P. (2021). Antimicrobial activity of Fuller's Earth, Turmeric, and Sandalwood against *Streptococcus Mutans, Micrococci* and *Coagulase Negative Staphylococci*: An *in vitro* study. Journal of Pharmaceutical Research International, **33**(58B) :65-73.

Mohammed, A. R. N.; Chaithra, D.; Venkatesham, B.; Javed, I. S. and Munawwar, H. K. (2021). Phytonanotechnological perspectives and biological activities in *Curcuma* species. Ann. Phytomed., **10**(2):82-89.

Mandeep, S.; Shalini, S.; Sukhbir, L. K.; Ram, K. S. and Rajendra, J. (2011). Preparation and evaluation of herbal cosmetics cream. Pharmacology Online, **1**(1):1258-1264.

Monika, S.; Meenakshi, V. and Sukumar, G. (2022). Review on Lodhra (*Symplocos Recemosa* Roxb.) in the Management of Raktapitta (bleeding disorder). International Research Journal of Ayurveda and Yoga, **5**(7):185-188.

Naba, J. D.; Rita, N.; Shantanu, T.; Mousumi, H.; Seema, R. P. and Surjit, M. D. (2021). Green synthesis and characterization of silver nanoparticles using leaves extract of Neem (*Azadirachta indica* L.) and assessment of its *in vitro* antioxidant and antibacterial activity. Ann. Phytomed., **10**(1):171-177.

Prakash, L. H. and Harini. (2021). A Text Book of Dravyaguna Vijnanna, published by Chaukambha Publications, New Delhi, pp:766-772.

Pravina, W.; Meena, D. and Sunil, D. (2016). Literature review of Palash (*Butea monosperma*). International Ayurvedic Medical Journal, **1**(1):101-106.

Pritil, B. A.; Ankush, D. K. and Swapnil, A. P. (2021). To study the efficacy of Masoor dal (*Lens culinaris*). European Journal of Pharmaceutical and Medical Research, **8**(3):599-602.

Puliyur, M. K. and Smitha, J. (2021). A synoptic review on Priyaladi lepa: An ayurvedic topical formulation for the management of Darunaka (dandruff). Int. J. Res. Ayurveda and Pharm., **12**(5):53-56.

Rashmi, S. P.; Yogendra, P. and Pranay, W. (2017). In-house preparation and standardization of herbal face pack. The Open Dermatology Journal, **11**(1):72-80.

Shailja, C.; Hemlata, K.; Madhusudan, S. and Gitika, C. (2021). Daruharidra (*Berberis aristata*): Review based upon its ayurvedic properties. International Journal for Research in Applied Sciences and Biotechnology, **8**(2):98-106.

Sharma, R. K. and Dash, B. (2022). Agnivesha, Charak samhita, with English translation and critical exposition based on chakrapanidatta Ayurveda dipika, volume I, sutra sthan, 4th chapter, Chowkhambha Samskrita Series, Varanasi, pp:84.

Sunita, N. V.; Surendra, A.; Umesh, B.; Telrandhe and Awdhut, P. (2023). A review on recent scenario of herbal cosmetics. Ann. Phytomed., **12**(1):160-170.

Siddhiqi, M. A. (1995). Format for the pharmacopoeial analytical standards of compound formulation, workshop on standardization of Unani drugs, Central Council for Research in Unani Medicine, New Delhi.

Thakral, K.K. (2016). Sushruta samhita, sutrasthana, vrana lepana vidhi, verse 6, Chaukhamba Orientalia, Varanasi, pp:128.

Yatish, M. R.; Jagadeesh G. M. and Hanumanthachar, J. (2019). Critical review on Nimba (*Azadirachta indica*). World Journal of Pharmacy and Pharmaceutical Sciences, **8**(10):417-424.

Citation **Vidyavathi Hiremath, B. Kothainayagi, Anupam Sharma, Supriya Gupta and Allam Ramakrishna (2023). Formulation and evaluation of an ayurvedic face pack, Manjishtadi mukhalepa for therapeutic and cosmetic purposes. Ann. Phytomed., 12(2):860-865. http://dx.doi.org/10.54085/ap.2023.12.2.101.**