

**A REVIEW ON: STANDERDIZATION OF HERB IN NEW ERA OF
COSMACEUTICALS: HERBAL COSMETICS**

Aishwarya S. Patil*, Ashwini V. Patil, Amol H. Patil, Tejeswini A. Patil, Mayur Bhurat,
Dr. Shashikant Barhate

Dept. of Pharmacognosy, Shree Sureshdada Jain Institute of Pharmaceutical Education and
Research, Jamner (M. S), India.

Article Received on
04 August 2017,

Revised on 25 August 2017,
Accepted on 15 Sept. 2017

DOI: 10.20959/wjpr201712-9686

Corresponding Author*Aishwarya S. Patil**

Dept. of Pharmacognosy,
Shree Sureshdada Jain
Institute of Pharmaceutical
Education and Research,
Jamner (M.S), India.

ABSTRACT

Herbal cosmetics are formulated, using different cosmetic ingredients to form the base in which one or more herbal ingredients are used to cure various skin ailments. The name itself suggests that herbal cosmetics are natural and free from all the harmful synthetic chemicals which otherwise may prove to be toxic to the skin. Compared to other beauty products, natural cosmetics are safe to use. Cosmeceuticals are cosmetic-pharmaceutical hybrid products intended to improve the health and beauty of the skin by providing a specific result, ranging from acne-control and anti-wrinkle effects, to sun protection. Cosmeceuticals have medicinal benefits which affect the biological functioning of skin depending upon type of functional ingredients they

contain. These are cosmetic products that are not just used for beautification but for different skin ailments. These products improve the functioning/texture of the skin by boosting collagen growth by eradicating harmful effects of free radicals, maintains keratin structure in good condition and making the skin healthier. There are numerous herbs available naturally having different uses in cosmetic preparations for skincare, hair care and as antioxidants. The current review highlights importance of herbal cosmetics, the herbs used in them and their advantages over the synthetic counterparts.

KEYWORDS: Standardization, Herbal cosmetics, Classification, Evaluation.

INTRODUCTION

The word cosmetic was derived from the Greek word “kosm tikos” meaning having the power, arrange, skill in decorating. The origin of cosmetics forms a continuous narrative

throughout the history of man as they developed. The man in prehistoric times 3000BC used colours for decoration to attract the animals that he wished to hunt and also the man survived attack from the enemy by colouring his skin and adorned his body for protection to provoke fear in an enemy (whether man or animal). The origin of cosmetics were associated with hunting, fighting, religion and superstition and later associated with medicine. The knowledge finally dissociated from medicine and finally to pharmacy. The man from ancient time had the magic tip towards impressing others with their looks ; at the time there were no fairness creams or any cosmetics surgeries to modify the appearance. The skin and hair beauty of individuals depends on the health, habits, routine job, climatic conditions and maintenance. The skin due to excessive exposure to heat will dehydrate during summer and causes wrinkle, freckles, blemishes, pigmentation and sunburns. The extreme winter cause damages to the skin in the form of cracks, cuts, maceration and infections. The skin diseases are common among all age groups and can be due to exposure towards microbes, chemical agents, and biological toxin present in the environment. The plant kingdom represents an almost inexhaustible source of biologically active compounds. Some of the most useful drugs have been derived from plants. Standardization of herbal formulations is essential in order to assess of quality drugs, based on the concentration of their active principles, physical, chemical, phyto-chemical, and standardization, and In-vitro, In-vivo parameters. Toxicology, Psychiatry, Pediatrics, Gynecology, Sexology & Virility. There are so many pearls lying in the deep ocean of the vast knowledge of this system, we just need to dive in and search the herbs which are valued for medicinal, aromatic or savory qualities that act upon the body and bestow a healthy soul in a healthy body. Herbs have been used for centuries across many cultures to treat various ailments and to maintain a healthy body.

Scope

For the pathogenesis of diseases, including those of skin improper diet is one of the major factors. With the view to provide humans a glowing and healthy skin, Ayurveda has mentioned certain diets that are nutritious and help eliminating the skin ailments. Although in today's busy world where refrigerated food and preserved food is preferred for convenience, it must always be kept in mind that in all circumstances if possible fresh food is always better than the preserved both Ayurveda reveals a lot of interesting and fascinating facts that enhance our knowledge about the living body, its components and day to day naturopathy ways that help cure and prevent ailments. Ayurveda describes the aging process in reference to age i.e. with increase in age there is an effect on the skin as it changes at every stage of life

and subsequently changes the appearance of the individual. Among the written information on Ayurveda, the sage Charakh stated numerous medicinal plants in Varnya Kashaya.

The secret of *Ayurvedic* cosmetology is in the surrounding nature. Indians skillfully use vegetables, fruit, spices, herbals, precious stones, metals, minerals and this let them create unique products which are magic for skin care. Combined with *Ayurvedic* massages and cleansing procedures these treatments lead our body and skin to immediate and long-term rejuvenation. Cosmetology is the science of alternation of appearance and modification of beauty. Any substance or preparation intended to be placed in contact with the external parts of human body (epidermis, hair, nails, lips, and external genitals) or with the teeth and mucous membrane of oral cavity with a view exclusively or mainly to cleaning them.

Need of Cosmetic

- To enhance general appearance
- Minimise skin defects
- Psychological application
- Social application
- Clinical application
- Protection of skin from UV rays, dust and rigid climate
- Cleansing effect
- Emollient effect

Classification of Herbal Cosmetics

1 According to region where it is used

- **skin:** Powder, lipsticks, rouges, creams, lotion, solution,
- **Hair:** Shampoos, conditioners, creams, bleaches, colouring preparation,
- **Nails:** Nail-lacquers , lacquer removers
- **Teeth:** Pastes ,powders ,gels, dentifrices
- **Eye:** Eyeliners, mascaras , eye shadows and eyebrow pencils

2 According to the function of cosmetic preparation:

- **Emollient:** cold cream, vanishing creams, foundation creams, lotion, solution.
- **Cleansing:** cream shampoo and rinsers etc.
- **Decorative preparation:** lipsticks, rouges, eyeliners, lacquers, and dressing preparation.

- **Deodorant and antiperspirants:** Sprays, sticks and mouthwashes.
- **Protective preparation:** creams and powders.

3 According to composition of cosmetics

- Lotion
- Powder
- Emulsion
- Solution
- Suspension
- Creams
- Pastes
- Gels
- Aerosols
- Sticks
- Pencils

Advantages

- Spectrophotometric or fluorimetric enzyme assays have high sensitivity and specificity; and allow accurate measurement of changes in enzyme activity.
- The concentration of the herbal drug required to inhibit 50% of a fixed amount of enzyme activity is termed the IC₅₀ value for enzyme inhibition.
- Candidate enzymes selected for activity-based standardization of herbals should satisfy three main criteria. First and foremost, the enzyme must show significant activation during the progression of the disease for which the herbal drug is prescribed. Secondly, the enzyme assay must be sensitive, specific and reproducible. Thirdly, a detailed chemo-profile of the herbal drug should be available.
- The results of a study suggested that aging Triphala powder loses potency with respect to its ability to inhibit hyaluronidase and collagenase enzyme activities.
- The correlative data between IC₅₀ value of enzyme inhibition and a particular chemical marker provides a simple and definitive method for standardizing the potency of the herbal drug.
- This is because the enzyme chosen is strongly involved in the progression of the disease for which the herbal drug is prescribed.

Herbal Cosmetics Can Be Grouped Into Following Major Categories

- Cosmetics for enhancing the appearance of facial skin
- Cosmetics for hair growth and care
- Cosmetics for skin care, especially in teenager (acne, pimples and sustaining)
- Shampoos, soaps, powders and perfumery, etc.
- miscellaneous products

Common Herbs Used In Cosmetics

According to Ayurveda there are certain herbs that have their mention in the old:-

- **Indigo:** Being blue in color it was used as a bindi / tika (dot) on the forehead and chin.
- **Madder Root:** Being available in color that suits the lips this was utilized to beautify lips and Cheeks.
- **Hibiscus Rosa Cynensis (Jaswand or Shoe Flower):** With dark color of its own this was used to blacken and maintain hair color.
- **Raktachandan:** This was another natural component available in attractive color and hence was used as fresh, red bindi / tika (dot) on the forehead.
- **Aloe Vera:** With the traits that prevent aging and regenerate growth of cells this was used as an essential component to keep oneself fit, protect the skin, prevents and heals skin irritations.
- **Cinnamon and Vertiver (Usheer):** It was used as scrubs and face packs that were applied on face and whole body to remove dead cells, regenerate growth of new cells and give a young look.
- **Haldi (Turmeric):** It was used as a face pack along with usheer (vertiver) and also as an antiseptic.

Medicinal Herbs as Cosmetics

The medicinal herb mentioned in ayurveda by experienced sages basically state that the function of Ayurvedic herbs is to purify blood and eliminate vitiated doshas (vata, pitta, kapha) from the body as they are mainly responsible for skin disorders and other diseases. Various herbs for which description and usage can be found in Ayurvedic inscriptions are chandana, Nagkeshara, Padmak, Khus, Yashtimadhu, Manjistha, Sariva, Payasya, Seta (shweta durva), Lata (shyama durva).

There is also the mention of various herbs from Kushthagna Mahakashaya that are effective curatives for skin disorders are Khadira, Abhaya, Amalaki, Haridra, Bhallataka, Saptaparna,

Aragvadha, Karavira, Vidanga, Jati. Like the notifications of charakh and other sages, Sushrut said that Eladi Gana contains, -Ela, tagar, kusstha, jatamansi, tvak, dhmamaka, patra, nagkeshar, priyangu, harenuka, vyaghranakha, shukti, stouneyaka, choraka, shriveshta, khus, goggol, sarjarasa, turushka, kundaru, agaru, ushira, devdaru, keshara, and padmakeshara. All these herbs can eliminate toxins from the body, clear the complexion that leads to a glow on the skin and alleviates puritus, kusstha and boils.

Herbs

Mother Nature has provided human, the favorites creation of God, with all that he needed to live on this earth water to quench thirst, air to breathe, grains to hunger, fire to light and so on. Human body is the microcosm of the entire cosmos and the answer to all human problems lies in maintaining harmony with the cosmic rhythm. Nature has offered the means to maintain that balance. Herbs! Yes herbs are one such means. An herb is a plant or plant extract, including leaves, bark, berries, roots, gums, seeds, stems and flowers which is bestowed with nourishing and healing elements. Herbs are the endowment of Mother Nature which has been used for healthcare throughout different ages and cultures of human history. According to the most ancient system of natural medication, Ayurveda, herbs work depending on the Self Correcting Mechanism and balance of three elements “Vata”, “Pitta” and “Kaplan” in the human body. Herbal treatment not only heals but also looks after the body to live a healthy and fruitful life. Herbal medicine and herbal extracts are the foremost component in all traditional medicine including Ayurvedic, homeopathic, naturopathic, traditional oriental, and Native American Indian medicine.

In herbal medication, herbs are used for their therapeutic or medicinal value. Herbal medicines and treatment can be divided into eight branches in Ayurveda; General medicine, Surgery, ENT & Eye Disease.

The Benefits of Herbs May Include The Following

- Enhance physical and mental well-being
- Strengthen the immune system
- Detoxification
- Aid in sleeping, digestion
- Increase stamina and reduce fatigue etc.

Nature is always an excellent golden mark to exemplify the outstanding phenomena of symbiosis. Herbal products in cosmetics or herb in cosmetics can also be referred as botanical origin products in cosmetics. According to the Drugs and Cosmetics Act 1940 cosmetics may be defined as, any substance intended to be rubbed, poured, sprinkled, or otherwise applied to human being for cleansing, beautifying, promoting attractiveness. Cosmeceuticals are the cosmetic products which contain biologically active principles or ingredients of plant origin having effect on user or they are combination product of cosmetics and pharmaceuticals intended to enhance the health and beauty of skin. Herbal cosmetics are defined as the beauty products which possess desirable physiological activity such as healing, smoothing appearance, enhancing and conditioning properties because of herbal ingredient. As the Ayurveda; the concept of beauty has an age old origin. In fact, the concept of beauty and cosmetics is as old as mankind and civilization.

Details Study of Medicinal Herbs

According to Ayurveda happiness, gloom, sadness and relaxation are the aspects that are reflected by the face and by the body and can't be disguised with cosmetics. In other words ayurveda emphasizes on external and internal beauty. It is believed in ayurveda that one can enhance internal beauty by understanding and following the basic principle of ayurveda. There's a secret beauty or the third level of beauty in Ayurveda and is also known as the state of 'self-realization'. Diet and lifestyle are two things that help achieve good health and beauty. As Ayurveda relates to every aspect of the mind, body and the soul, it considers beauty as an intimate part of the human personality. To serve the purpose of fast natural beauty a faster and deeper cleansing and re-balancing is accomplished by using Ayurveda's traditional rejuvenation therapy. The rejuvenation therapy in ayurveda teaches ways to become naturally beautiful, which is not just limited to the physical body but extends to subtle qualities and vitality of a person. Hence rejuvenation therapy is regarded as an integral part of ongoing self-care that helps beauty be with you throughout life and a fresh start in the process of making health-supporting lifestyle changes.

How to Use Herb in Cosmetic

In earlier time herbal drug or herbs were used for both medicinal purposes as well as for beautification. They have been used in fresh form and dried form. These can be used by making some preparation or directly applying to the body with or without using other ingredients. In fact in earlier time these were used this way but now a day their extract

decoction, infusion, tinctures, steam distillates etc are used rather than herbs themselves. Whenever these are prepared preservatives should be added to them as these are perishable.

- 1. Infusion:** Infusion is basically strong teas and can be prepared either in china clay pots or stainless steel vessel. Aluminum vessel should not be used as these contaminate the infusion.
- 2. Decoctions:** Decoction is prepared by boiling the herb with water.
- 3. Extract and Tincture:** Extract are generally prepared with hydro-alcoholic solvent and tincture are prepared with the solvent having high percentage of alcoholic.
- 4. Flower Water:** Flower water made in the same way as infusion. The same preparation of herbs and water can be used. However the difference in infusion and flowers water is that solvent is allowed to remain in contact with flowers overnight in case of flower water. Flower water can also be prepared by using essence (essential oil) and purified water.
- 5. Oil Soluble Extract:** Oil soluble extract are prepared by extracting herbs with petroleum ether. The herb is left in contact with water overnight. Water mixture is placed in a vessel containing oil and the vessel is heated till all the water has been removed. Allow the oil to cool and is then filtered. In this way oil soluble principle of herb goes into oil.

The large numbers of Phytoconstituents are used in cosmetic preparations

- **Retinoic Acid:** Naturally occurring form of Vitamin A. Vitamin A is known as retinoic acid which is very commonly used topically for treatment of photo-aged (sun-damage) and also for acne i.e skin eruption red pimples. Retinoic acid is said to increase the rate of cell division and turnover. It is also useful in reducing the wrinkles hyper pigmentation and roughness due to over exposure to sunlight.
- **Alpha Hydroxy Acid:** Glycolic acid and lactic acid are the commonly used alpha hydroxy acid in cosmeceutical formulations. These weaken the linkage of cell in dry skin and favour its exfoliation. The flexibility of skin is increased due to topical application.
- **Basw Ellic Acid:** These are present in the resin of baswellia serrata and are said to inhibit the enzymes responsible for inflammation (5-lipoxygenase) and damage due to elastin of the skin hence incorporated in anti-inflammatory creams and lotion.
- **Vitamins (Vitamin-C and E):** A well antioxidant vitamin C from amla tremendously used in cosmetics. It is described to be the scavenger of oxygen free radicals which are responsible for aging process of skin. Vitamin C has synergistic effect with vitamin E and used as protective against UV radiation.

- **Co-Enzymes Q-10 (Ubiquinone):** UV radiation not only damages the skin but also reported to reduce its natural collagen. Ubiquinone reduces the activity of enzymes which degrades the collagen.
- **Miscellaneous:** Tetrahydrocurcuminoids white curcuminoids of turmeric (*Curcuma longa*), carnosic acid, cosmarinic acid and ursolic acid from rosemary extract *Rosmarinus officinalis* as antioxidant are the other compounds which are used to facilitate the tissue and restoring the healthy status of skin.

Advantages of Herbal Medicine

1. Herbal medicine have long history of use and better patient tolerance as well as acceptance.
2. Medicinal plants have a renewable source, which is our only hope for sustainable supplies of cheaper medicines for the world growing population.
3. The cultivation and processing of medicinal herbs and herbal products is environmental friendly.
4. Prolong and apparently uneventful use of herbal medicines may offer testimony of their safety and efficacy.

How to use Herb in Cosmetic

Like any other branch of science and technology, present scenario of herbal medicine has its own limitations arising out of its own technical constituents.

The Prominent Limitations of Herbal Medicines can be summarized as follow

Ineffective In Acute Medical Care

As may be observed, herbal medicines are not varying effective to treat any acute illness. As most of the medicines are designed to work at molecular level of physiology, the drug takes its time to deliver the results. However there are few herbal medicines which work instantly in acute conditions like diarrhea.

Inadequate Standardization and Lack of Quality Specifications This is the most often criticized aspect of herbal medicines. One important fact is that a herbal medicines. One important fact is that a herbal preparation is administered for its holistic value.

Lack of Scientific Data

Literature on herbal medicines, lack of Lack of scientific data in support of the medicinal activity claimed and their safety and efficacy assumed. Hence there is a need to incorporate certain parameters of the pharmacological evaluation of moderns on modern lines.

Advantages of Ayurveda in Cosmetology

- Long history of safe human usage, not tested on animals.
- The human body responds well to natural substances and has a resistance to synthetic ones.
- The skin and scalp are influenced at the cellular level, helping to improve normal function.
- Boosts the capacity to absorb products.
- Restores the normal pH balances.
- Herbs have a mild effect but have powerful & specific healing properties.
- Particularly suited to skin and hair care.
- Natural fragrances of flower and herbal extracts help to calm the nerves and induce relaxation.

Ayurveda Medicine as Cosmetics

Charak samhita classified cosmetics drugs as Varnya, Kustagna, Kandugna, bayasthapak, udardaprasamana, etc. Many alepam (poultice) Pradeha, upnaha, anjana, taila are described in Susruta Samhita and Astanga hrudaya in the context of twak roga. The very common medicine are- Kungkumadi lepam, Dasnga lepam, Chandanadi lepam, Dasana samskar churna, Kukummadi taila, Nilibringaraj taila, Himasagar taila, etc are very well established medicine in Ayurveda. Sesame Oil is used as a base in many oil in Ayurveda. It contains Lignan compounds called Sesamin and Sesamolin, which are biologically active. These compounds enhance stability of the oil. They have potential to be used as anti-oxidant compounds as well as having a moisturising effect. Buttermilk and goat's milk powders traditionally used in Indian face mask preparations have soothing and emollient properties. They also contain vitamin A, B6, B12 and E. They make beneficial alternatives to chemical bases and emollients. Shikakai is a traditional herb used in hair shampoos. The material is extracted from the Shikakai pods and Shikakai nuts of the Acacia Concinna shrub. It was used as soap in Ayurvedic tradition. The oils also maintain integrity of cosmetic products and could be used as base instead of petroleum and plastic derivatives.

The Ayurvedic cosmetics may group under

1. Cosmetics for enhancing the appearance of facial skin.
2. Cosmetics for hair growth and care.
3. Cosmetics for skin care, especially in teenagers (acne, pimples and sustaining).
4. Shampoos, soaps, powders and perfumery, etc.
5. Miscellaneous products.

List of Ayurvedic medicinal plants Commonly used in Cosmetics**A. Medicinal Plants used as Moisturizers, Tonics & Anti-Aging:-**

- | | |
|---------------------------|--|
| 1. Aloe vera | - Moisturizer, Sunscreen & Emollient |
| 2. Calendula officinalis | - Wound healing |
| 3. Cichorium intybus | - Skin blemishes |
| 4. Curcuma longa | - Antiseptic, Antibacterial, Improves complexion |
| 5. Daucus carota | - Natural toner and skin rejuvenator |
| 6. Glycyrrhiza glabra | - Skin whitening |
| 7. Ocimum sanctum | - Anti-aging, Antibacterial & Antiseptic |
| 8. Rosa damascena | - Toning & Cooling |
| 9. Rosmarinus officinalis | - Skin rejuvenator & Cleansing |
| 10. Rubia cordifolia | - Wound healing & Anti-aging |
| 11. Triticum sativum | - Antioxidant, Skin nourisher, anti-wrinkle |

B. Sun Screen

- | | |
|--------------|---|
| 1. Aloe vera | - Moisturizer, Triticum sativum Antioxidant |
|--------------|---|

C. Sun Tan

- | | |
|---------------------|---------------|
| 1. Cyperus rotundus | - Sun tanning |
| 2. Moringa oliefera | - Sun tanning |

D. Astringent

- | | |
|------------------------|--|
| 1. Mesua ferrea | - Strong Astringent |
| 2. Pistacia Integerrim | - Astringent, Rubefacient, Anti-bacterial |
| 3. Terminalia chebula | - Astringent, Antibacterial, Antifungal & Antiseptic |

E. Ayurvedic Ingredients for Dental Care Product Uses

- | | |
|-----------------------|--|
| 1. Azadirachta indica | - Toothache, Antibacterial, Dental carries |
|-----------------------|--|

2. Acacia Arabica - Swelling, Bleeding gums & Syphilitic infections
3. Barleria prionitis - Toothache, Bleeding gums & strengthens teeth
4. Mimosops Elengi - Astringent, keep gums healthy
5. Pimpinella anisum - Antiseptic, Aromatic flavor
6. Salvadora persica - Potent Antimicrobial
7. Syzygium aromaticum - Local anesthetic, relieves toothache
8. Symplocos Racemosus - Strengthen gums and teeth

F. Dermatological Applications

1. Allium sativum - Antifungal, Antiseptic, Tonic
2. Alpinia galangal - Antibacterial
3. Azadirachta indica - Potent Antibacterial
4. Celastrus paniculata - Wounds healing, Eczema
5. Nigella sativa - Antibacterial, Leucoderma
6. Pongamia glabra - Herpes, Scabies,
7. Psoralea corylifolia - Leucoderma, Leprosy, Psoriasis & Inflammation

G. Ingredients for Hair Care Product Uses

1. Acacia concinna - Natural Detergent & Anti-dandruff
2. Aloe Vera - Cleanser & Revitalizer
3. Azadirachta indica - Reduces hair loss, Anti-dandruff
4. Bacopa monnieri - Hair tonic, Promotes hair growth
5. Cedrus deodara - Anti-dandruff
6. Centella asiatica - Darkening of hair
7. Eclipta alba - Reduces premature graying of hair, Alopecia
8. Emblica officinalis - Toner, Anti-dandruff, Protects & reduces hair loss
9. Hibiscus rosa sinensis - Natural Hair dye, Prevent hair fall, Anti- dandruff
10. Hedychium spicatum - Promotes hair growth
11. Lawsonia alba - Natural Hair dye, Antidandruff, Conditioner
12. Rosmarinus officinalis - Nourishes, Softens & restores the hair shafts
13. Sapindus trifoliatus - Natural detergent & Cleanse
14. Triticum sativum - Provides nourishment, lubrication & luster
15. Terminalia belerica - Prevents graying of hair
16. Sesamum indicum - Promotes hair growth, blackens the hair.

DISCUSSION AND CONCLUSION

Consumers worldwide are going green, and this is especially true in the cosmetics market. Over the last few years, growth in the beauty market has been driven by products that use natural or herbal components, and the market share of natural-based products has been increasing gradually. The India market has been traditionally inclined toward natural products for their beauty needs and Indians have a history and knowledge of using natural products. The need is for companies to translate the ancient *ayurvedic* recipes into modern, easy to-use formats with superior quality. Concern about harmful chemicals in beauty products has increased consumer interest in natural cosmetics. More and more products now include herbal and botanical ingredients. *Ayurvedic* cosmetics are still competing with synthetic products and they need to strive to ensure quality that is similar to synthetic brands.

Formulation and Evaluation

In formulating cosmetic preparation non herbal ingredients are commonly used, but now herbal ingredients are gaining more acceptances among consumers. The usage of herbal ingredients should be based on experience, so that the properties of the formulation are not altered. The formulation of herbal cosmetics follows the same procedures as that of the cosmetic preparation prepared with synthetic origin. The formulations are based on the selection of proper emulsifying agents, composition of the appropriate ingredients and modified methodology to get the required product. The manufacturers should ensure the quality of the raw materials and the finished products by quality control testing. The other parameters tested include organoleptic characteristics, pH, viscosity, refrigeration and stability towards light. The major drawback with herbal ingredient is the attack of microbes rendering them unfit for human use. So care must be taken to prevent the bacterial attack completely. The evaluation of herbal cosmetics is very essential and there is no hard and fast code of practice, which can be laid down for all products or even product types. The evaluation of herbal cosmetics is essentially the same as that for the other common cosmetics products which are available in market. The ingredients used in cosmetics should be of the highest quality so as to minimize the irritancy and sensitivity reaction. The physical evaluation parameters used for herbal cosmetics include the colour, odour, form of physical state, pH, and net content. The other evaluations done for herbal cosmetics are sensitivity test, irritation test and grittiness. The irritancy and sensitivity test can be performed by either diagnostic testing or by the prophetic or predictive testing. The test will help to detect the irritant and sensitizing potential of new cosmetic ingredients. The evaluations of facial

cosmetics are grouped into physical parameters, esthetic and pressure testing. The physical parameters include colour, adhesiveness, pH, net content, odour, size and shape of the particle and finally the moisture content. The dentifrices are evaluated for abrasiveness, degree of luster production, consistency, pH, specific gravity, taste, odour, colour, moisture content and fragrance test. The hair conditioners are evaluated for softness, luster, lubricity, body texture and set retention, irritation on eye, oral toxicity, fragrance test, colour and consistency. The cosmetics in the form of semisolid products are tested for bleeding and rheology in addition to the other routine tests. The microbial test, toxicity test and stability studies were also performed for evaluating the cosmetics products. The analytical chemist continues to have a major role in selecting the most appropriate method, managing the data, interpreting the results. The analytical techniques are basically classified into classical method and instrumental method. The classical methods are based on the observation and measurement of the chemical reactivity of analytes in solution. The instrumental methods are based upon the detailed examination of the physical or physicochemical properties of analytes related to their molecular or atomic structures. The methods will provide information of the qualitative data regarding the chemical nature of compound and detection of specific compounds in the cosmetic products. The parameters like gloss and individualization are measured by instrumental method utilizing light reflection. The hair strength can be evaluated by measuring the force required to stretch and break individual hair fibres by Instron Tester, Dia-stron Miniature Tensile Tester and Automatic Carousel arrangement. The hair fiber cross-sectional area which contributes the tensile strength can be measure by microscopy or by weighing standard lengths of hair fiber. Biological screening establishes the efficacy of formulated herbal hair oil.

Evaluation of Cosmetics

- **Physical Evaluation:** Colour, Odour, Form, pH, Net Content
- **Grittiness:** Rub a pinch of product on skin and then observe with magnifying glass, if there is no rash or eruption then it is considered free from grittiness.
- **Bleeding test:** This test is especially for semisolid preparation. observe the bleeding of liquid i.e liquid phase omits from preparation. If no bleeding then the product can be called as stable at climatic condion.
- **Rheology:** It is used to study flow property of liquid or semisolid products spreadability, pourability of product have to be determine .

- **Microbial test:** As herbal sensitive to microbial growth, microbial has to be carried out by agar well diffusion method or turbidometric method.
- **Stability studies:** It is carried out at elevated temperatures (like 45,90 and 120⁰c), relative humidity and pH a period of 6 months and above parameter are evaluated periodically to changes in product.
- **Infra-red spectroscopy studies:** The studies are useful for determination of excipients compatibility.
- **Chromatographic Evaluation:** The contents of cosmetic product can be determine and confirmed by chromatography like TLC, HPTLC, HPLC, Gas chromatography.
- **In vitro drug release:** This study can be performed by simple dialysis tube method .the concentration of drug release can be determined by HPLC or UV spectrophotometer.
- **In vitro skin permeation studies:** In vitro skin penetration studies can be performed with human cadaver skin, using keshary-chien cells or Franz diffusion cells.
- **In vitro sun protection factor determination by UV spectrophotometer:** This method used to determine SPF (sun protection factor). It measures the spectral transmittance at UV wavelengths from 280 to 400 nm and thus reduction of the irradiation after passing through a film of the product .calculate the SPF factor following formula-

$$SPF = CF \times \sum_{290}^{320} FE(\lambda) \times I(\lambda) \times Abs(\lambda)$$

Where,

CF = CORRECTION factor i.e. 10,

EE (λ) = erythmogenic effect of radiation with wavelength λ .

Abs (λ) = spectrophotometric absorbance values at wavelength λ .

- **Sensitivity test:** It is also called as patch test .apply product on 1 cm² of animal skin or human epidermis, if there is no inflammation or rashes then it is free from sensitivity.
- **Irritation test:** Apply the product same as above and observe for erythema and edema at 24 and 72 hours. Calculate the primary irritation index based on the sum of the scored reaction divided by 24.
- **Toxicity test:** It is carried out on animal to calculate LD/50 values and acute, chronic toxicity parameter using mice preferably.
- **Form and form stability test for shampoo:** Thus is a very simple method developed by Ross-Miles. take the 200 ml of 0.1% shampoo solution and pass through the orifice into a glass column containing 500 ml of the same solution.

Herbal cosmetic

It Include the Following parameter

Sr. No.	Parameter	Details
1.	Botanical parameters	<p>Sensory evaluation: Visual macroscopy, touch, odour, taste.</p> <p>-----</p> <p>Foreign matter: Plants, animals, minerals etc.</p> <p>-----</p> <p>Microscopy : Histological observation and Measurements</p>
2.	Physico-chemical Properties	<p>TLC/HPTLC fingerprint</p> <p>-----</p> <p>Ash value: Total ash, acid-insoluble ash, water-soluble ash and sulphated ash.</p> <p>-----</p> <p>Extractive values: In hot water, cold water and ethanol. Moisture content and volatile matter: Loss on drying, azeotropic distillation etc.</p> <p>-----</p> <p>Volatile oils: By steam distillation.</p>
3.	Pharmacological parameters	<p>Bitterness value: Unit equivalent bitterness of standard solution of quinine hydrochloride.</p> <p>-----</p> <p>Hemolytic property: On ox blood by comparison with Standard reference solution of saponin.</p> <p>-----</p> <p>Astringent property: Tannins that bind to standard Frieberg Heid powder.</p> <p>-----</p> <p>Swelling index: In water.</p> <p>-----</p> <p>Foaming index: Foam height produced by 1gm of substance under specified conditions.</p>
4.	Toxicological parameters	<p>Arsenic: Stain produced on HgBr₂ paper in comparison to standard stain.</p> <p>-----</p> <p>Pesticide residues: Includes total organic chloride and total organic phosphorous.</p> <p>-----</p> <p>Heavy metals: like cadmium and lead.</p> <p>-----</p> <p>Microbial contamination: Total viable aerobic count of pathogens.</p> <p>-----</p> <p>Aflatoxins: By TLC using standard.</p> <p>-----</p> <p>Aflatoxins: (B1, B2, G1 and G2) Radioactive Contamination</p>

REFERENCES

1. Hughes, G.R., J. Soc. Cosmet. Chem., X, D, 1959.
2. Dr S.S.khadabadi, Dr S.L. Deore, B.A. Baviskar, "Experimental phytopharmacongnosy A Comprehensive" Nirali prakashan, First edition, May-2011; 13.2-13.3.
3. Kokate K.C., Purohit A.P., Gokhale S.B. Cosmeceuticals In: Pharmacognosy. Nirali Publication, Pune. 36thed, 2006; 548.
4. Rakesh K.S., Rajesh Arora. Plants for Aromatherapy and cosmetics In: Herbal Drug. Jaypee Publication, New Dehli. 1stedition, 2006; 469- 475.
5. B. M. Mithal and R. N. Shah, A Hand Book of Cosmetics, 1st Edition, Vallabh Prakashan, Delhi, 2000; 141-142.
6. http://www.herbsncures.com/medicinal_herbs.html.
7. Indian Pharmacopoeia, Government of India, Ministry of Health and Family Welfare, Published by, the Controller of Publication, Edition, 1996; II.
8. Bhatia S.C. Perfumes, Soaps, Detergent, Cosmetics. In: Herbal cosmetics, Vol-II. CBS Publication, Delhi. 1st ed, 2001.
9. Agrawal SS, Paridhavi M. Herbal Drug Technology. Hyderabad: Universities Press, 2007; 629-30.
10. Panda AK Cosmetology in Ayurveda Literature, Ayursurabhi, 2005; 2-14.
11. Chuarienthong P, Laurith N, leelaponnpisid P Clinical efficacy of Anti-wrinkle cosmetics containing herbal flavonoids. International journal of cosmetic science, 2010; 32: 99-116.
12. Hazra J, Panda AK Concept of Beauty and Ayurveda Medicine. J Clin Exp Dermatol Res, 2013; 4: 178. doi:10.4172/2155- 9554.1000178.
13. Momin NM, Disouza JI, Tatke PA, MelitaGonsalves, Aparna Marker Based Standardization of Novel Herbal Dental Gel, Research Journal of Topical and Cosmetic Science, 2011; 2.
14. *Ayurvedic Cosmetics Market Outlook* from Kuick Research, 2018.
15. Kuchekar B.S. Drug and cosmetics act 1940. In: Pharmaceutical Jurisprudence. Nirali Publication, Pune, 9th ed, 2004; 35.
16. Rakesh K.S., Rajesh Arora. Plants for Aromatherapy and cosmetics In: Herbal Drug. Jaypee Publication, New Dehli. 1stedition, 2006; 469- 475.
17. Kokate K.C., Purohit A.P., Gokhale S.B. Cosmeceuticals In: Pharmacognosy. Nirali Publication, Pune. 36th ed, 2006; 593.
18. Kokate K.C., Purohit A.P., Gokhale S.B. Cosmeceuticals In: Pharmacognosy. Nirali Publication, Pune. 36th ed, 2006; 548.

19. Kapoor. V. P., Herbal Cosmetics for Skin and Hair Care, Natural Product Radiance, 306-314.
20. Harry R.G, In: Modern Cosmeticology, Vol 1(Revision Eds), Wilkinson J.B., Clark R., Green E., Mclaughlin T.P., Leonard Hill (Books) Ltd, London, 1962.
21. Sankholkar D.S, Current Regulations and Suggested Way Forward, The Pharma Times, 2009; 41(8): 30-31.
22. Wall. F. E., Balsam M. S., Sagarin. E., (eds), Cosmetics: Science and Technology. Jhon Wiley and Sons, Chichester, 1974.