

Review on Ingredients of Cosmetics and their Effect on Human Body

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Abstract: *Cosmetics are the substances which are applied to body with the intension to improve the appearance or the quality. These products may use for different purposes. Generally cosmetics are taken to mean only makeup products, but Food and Drug Administration (FDA) of united state considers these products broadly as the substances which are used as cleansing, beautifying enhancing attractiveness without affecting the body's structure and function. Basically Cosmetics are mixture of chemical compound which may be animal or plant origin or derived from natural sources or may be synthetically prepared. Since ancient period these substances have been in use and continued till today. There are many evidences of negative adverse effect of cosmetics like deformities, blindness, swelling and inflammation of eyes dueto use of mascara, rashes on skin or blacking of skin due to heavy use of cosmetics. The adverse effect of these substances may associate with imbalance ingredients, or allergic compounds or possible reason may be hazardous additives. Numbers of harmful chemicals used in cosmetics viz., Lead in lipsticks, Formaldehyde in nail polishes etc. are the common ingredients. This review article focused on the use of various plants as source of cosmetics and their effect on human body.*

Keywords: Cosmetics

I. INTRODUCTION

1.1 Cosmetic used in Ancient World

The concept of Beauty is as old as man civilization. To enhance the body beauty, application of cosmetic is common practice since ancient period. The evidences of cosmetics use are found dating back to the predynastic period (c. 6000-c. 3150BCE) Egypt culture and till is continued (Angeloglou Maggie,1970). Ancient Egyptians had strong belief in clinginess and appearance as purity of body and soul had religiousimplication. They linked between Cosmetics and divine. Even cosmetics were placed in tomb as grave goods. According to Schneider *et al.* (2001) the cosmetic developments includes Kohal used by Egyptians, For Egyptians cosmetics were not only beautifying substance but it was acting as medicine, such as skin moisturizer made from Fats and oil, Lotions were made from natron and ash. Myrrh was used as perfume and medicine. The material used for cosmetic preparation was of diverse origin. The eyeliner and eye shadow made from minerals viz, green malachite and black galena. Rough was made from lichens. In Roman culture cosmetics were concerns more with women. Castor oil was used as Bam, use of skin creams, olive oil, bees wax and rose water etc. were general cosmetics used by Romans. In Roman culture Milk was used as skin tonner. Perfume use was common. In the perfume preparation general ingredients used were of plant origin i.e., Cinnamon, Date palm, Quince, Basil, and all available flowers (Mark J.J. 2017).

1.2 Cosmetics used in Ancient India

The evidences of Cosmetic use are found in Ancient Indian literature. Besides the use of gold, silver ornaments several makeup articles were used to enhanced the body beauty. In Rig-Veda and Atharvaveda mentions of women hair style and use of Kushtha (Saussurea lappa GB Clake) as a scented drug , Yashthimadhu (Glycyrriza glabra Linn), Nalada (Vetiveria Zizanioides (Linn)Nash) and Anjana (Collyrium)were applied as cosmetics (G.P.Prasad et.al.2011). The ancient literature of cosmetic are not only the beauty enhancing substances but were used as medicine. Sushruta known as father of surgery in ancient india has great contribution in cosmetology. In his Famous compendium *Susruta* he explained the medicinal treatment for Skin diseases like Hypopigmentations (shvitra) and Hyperpigmentations (Vyanga and Nilika). He mentioned

Jalgandhaja kshar, Avalgujadi lepa and Tutthadi facepack (lepas) for Hypopigmentations (K.R. Shrikantha 2012). Sirveda **treatment** and paste of tusk (canine tooth) of boar mixing with honey and ghee for Hyperpigmentations (Kaviraj Ambikadatta 2014).

1.3 Types of Cosmetics

Cosmetics can be classified by various ways

- **According to their physical form** - According to their physical form, they may, solidlike Powder or Soap, semisolid cosmetics like cream, shampoo, ointments, Rose water, liquid shampoo are the examples of Liquid or in Gaseous cosmetics like aerosols.
- **On the basis of their application on body**- Cosmetics can be classified as Skin care cosmetics, Hair care, colour cosmetics, Fragrance, toiletries and others.
- **On the basis of their origin**- Cosmetics on the basis of origin are Synthetic cosmetics and Natural Cosmetics

II. NATURAL COSMETICS

Natural cosmetics may be of plant origin like Aloe vera, Ocimum, Sandal, Turmeric most of the ancient cosmetics were of plant origin. Animal origin includes the Milk and milk products, Honey, Carmine, Lanolin, Shellac, Glycerine, Collagen Squalence etc. are animal derived beauty products (Sally Ho 2021).

2.1 Synthetic Cosmetics- Chemical Derived Cosmetics

The substances which are produced by chemical process and have chemically altered substance are the synthetic cosmetics. Cosmetics applications to body have both the beneficial and harmful effects on skin and Hair. The positive and negative effects of the cosmetic product are related to the origin of product. Various types of beauty products are available in the market. Application of these product one can get the smooth and healthy skin or hairs. It is the faith of common people that these products enhance the beauty but most of the beauty products are terrible and harsh to skin. Numerous research study report the carcinogenic effect of cosmetics (Ramasubramani , 2016).

2.2 Skin Care Cosmetics-Soaps

Soaps are the cleaning products used for domestic purpose, particularly to remove the germs and dirt. Scientifically soap is a mixture of sodium and potassium salts of various natural occurring fatty acids. (John *et al.* 2021) investigated that the physicochemical parameters were present beyond the tolerable amount rendering the soaps unsafe for long-term predominant domestic uses. The main adverse effect associated with inorganic mercury contained in skin lightening soaps and creams is kidney damage (Mehardat *et al.* 2014).

2.3 Moisturiser

Moisturisers hydrates the skin and kept soft moisturizer contains the humectant that have water attracting property.

2.4 Skin Lightening Cream

Hydroquinone is an ingredient used as skin lightener. it inhibits the melanin production by inhibiting tyrosinase enzyme may also function by interfering with the formation or degradation of melanosomes and by inhibiting the synthesis of DNA and RNA within melanocytes. It is cytotoxic to melanocytes and mutagenic to mammalian cell (khan and Alam, 2019) The skin lightening however, hydroquinone has been associated with cancer scare and exogenous ochronosis, a condition that results in the skin becoming dark and thick..

2.5 Sunscreen

Application of sunscreen is very common among the women. It causes the phototoxic, allergic reactions. Benzophenone is the sensitizer present in it. Para amino benzoic acid and debenzoyl methanes , cinnamate cause the allergic dermatitis Johansen *et al.* (1996).

2.6 Deodorant/Perfumes

The sprayed fragrance enters the skin or in respiratory tract through the nose or may reach upto brain cause headaches fatigue, irritation to throat and eyes. The hazardous carcinogenes known as Coumarin, phethleugenol is present which disturbs the function of harmones in body (Bridges 2002).

2.7 Facial Cream

Facial is the skin relaxing, stimulating and rejuvenation process in the beauty parlor. itremoves the dead skin and face glow due the new cell generation. Mercury is present in skin-lightening products in the organic form or inorganic form. Skin problems like rashes, discoloration and scarring and reduce resistance capacity against bacteria and fungi. Other side effects include anxiety, depression or psychosis and peripheralneuropathy (Khan and Alam, 2019).

2.8 Eye Cosmetic

It includes the Kajal, Mascara, Eye liner etc. Evidences of Kohl or kajal are reported from Egyptian, Greek, Roman and Sindhu Ghati Culture. There was a common ancient belief that eye makeup could remove evil spirits and improve sight. A. (Claeysens, 2009). When skin is in contact with Lead it may be absorbed through the skin. The use of leaded eye powders (e.g., Surma, Kohl) has been associated with increased blood-lead levels in children and women (Ababneth *et al.* 2013). Lead contact cause miscarriage, hormonal changes, infertility in men and women, menstrual irregularities, delays in puberty onset in girls Al Saleh *et al.* (2009).

2.9 Hair Cosmetics

It includes the various shampoo, Oils, Creams and colours or dyes. While applying shampoo on hair the contact time should be very less. for longer time contact may cause eye irritation and dryness in hair. Generally shampoos are alkaline base shampoo with neutral PH is the best matting of the scalp hair also referred to as tangling of hair is the effect of shampoo (Wilson *et al.* 1990).

2.10 Hair Bleach

Chemicals like Hydrogen peroxide and Ammonium persulfate are responsible for Allergies (Fewings and Menne 1999).

2.11 Hair Dye/Black Heena

It is the mixture of red henna with pphenylenediamine (PPD), and is used as a Hair Dye. Negative effects of PPD include blisters, surface oozing, swelling and erythromatous rashes on the skin. Research on the Black Heena shows allergic reactions like sneezing, runny nose, cough and shortness of breath instead of skin reaction and hypertrichosis also reported Nigam and Saxena (1988), Spornraft- Ragaller *et al.* (2012).

2.12 Nail Polish

Di butyl Phthalate is the substance used in Nail polish. It is a solvent to dye and as a plasticizer that prevent nail polishes from becoming hard and brittle. DBA has an adverse effect on prostate, testes and sperm count and also act as endocrine disruptor (Barlow *et al.* 2004).

Several other chemicals like Nickel, Siloxane, petrolatum, Polyethylene Glycols (PEGs), Cadmium, Parabens, DEA (Cocamide DEA and Lauramide DEA), Coal Tar Dyes etc are present in synthetic cosmetics lead to many adverse effects on human body which may of temporary or permanent. Increasing Demand of Beauty products in market leads to manufacture more synthetic cosmetics. Due to awareness the current trend in cosmetics embraces the back to nature concept. Cosmetic ingredients obtained from botanical sources able to reduce the possible negative impact of chemicals on human skin. Herbal beauty products possess the desirable physiological activity such as healing, smoothing appearance, enhancing and conditioning properties. Plant based products have been used as antioxidants in cosmeceuticals tocopherols and tocotrienols are present in vegetable oil.

According to Khaiat, (2005) Rosa canina (dog rose) fruits, kiwi fruits and Malphigia punicifolia (West Indian cherry) are rich in ascorbic acid, which can improve cell resistance, to degrade histamine, to protect against free-radical damage, to help maintain skin elasticity and to have immune stimulating activity. The growing interest in herbs is a part of the movement

towards change in life-styles. This is based on the belief that the plants have a vast potential for their use as a curative medicine. There are vast evidences about the benefits of herbal cosmetics. herbal cosmetics are used not as cosmetics but are considered as medicine.

III. HERBAL MEDICINES TO ENHANCE BEAUTY AND HEALTH

Acacia concinna (Shikakai) Linn. and *Sapindus mukorossi* (Ritha) as Hair shampoo is common practice since old age. for the Dandruff treatment Ayurveda has numerous natural medications and commonly used herbs include Neem, Kapoor (naphthalene), and Henna, Hirda, Behada, and Amalaki, Magic nut, Bringaraj, RosaryPea, Sweet Flag etc. Granstrom (1987). Sapindus have several phytochemical properties. Among them the most explored phytoconstituents are triterpenoidal saponins of mainly three types viz oleanane, dammarane and tirucullane type (Suhagia et al., 2011)

3.1 Henna *Lawsonia inermis*

L. member of the family Lythraceae, which contain a dye molecule called Lawsone, Leaves after grinding known as Henna powder. Henna has natural affinity with the proteins in our hair, making it able to “stain” the colour onto the hair Oomah et al.(2000) . Leaves contains the compound Naphthoquinone derivatives Lawsone (2-hydroxy 1,4-naphthoquinone), 1,3-dihydroxy naphthalene, 1,4-naphthoquinone, 1,2-dihydroxy-4-glucosylnaphthalene. Scientific study shows the different biological actions of *L. inermis* in various *in-vitro* and *in-vivo* test models. Henna leaves, flower, seeds, stem bark, roots have been found to exhibit antioxidant, antidiabetic, hepatoprotective, hypoglycemic, antimicrobial, anticancer and woundhealing properties.

3.2 Green tea -*Camellia sinensis* L.

Is the leaves of *Camellia sinensis* belonging to family Theaceae commonly consumed as a beverage or dietary supplement, but it has property of skin protection. Department of Dermatology, Columbia University, New York. Studies suggest that the catechins in green tea are some 20 times stronger in their antioxidant powers than even vitamin

E (Product catalogue-online.). Green tea constituents may be useful topically for promoting skin regeneration, wound healing, or treatment of certain epithelial conditions such as aphthous ulcers, psoriasis, rosacea, and actinic keratosis. At certain concentrations, EGCG or a mixture of the major green tea polyphenols stimulated aged keratinocytes to generate biological energy and to synthesize DNA, possibly for renewed cell division (Hsu et al., 2003)

3.3 Turmeric-*Curcuma longa* L.

Turmeric Botanic name *Curcuma longa* is a rhizomatous perennial plant of the ginger family Zingiberaceae. Preliminary research found that the bioactive compound curcuminoid polyphenol affects different chronic conditions Its essential oils, and oleoresins are generally recognized as safe by the US Food and Drug Administration (Singletary Keith 2020). Studies in animals indicate that curcuminoids have relatively low potential for toxicity. (Sahebkar and Henrotin 2016). Turmeric is used in many celebrations of Hindus like marriage ceremony. Especially in Hindu wedding brides would rub with turmeric on their bodies for glowing look. Infants rubbed with turmeric on their forehead for good luck. Traditionally women rub turmeric on their cheeks to produce a natural golden glow.

3.4 Amla- *Emblica Officinalis* Linn.

Hair Care Amla is fruit of the plant *Emblica Officinalis*, Family Euphorbiaceae. Amla is rich in vitamin C, tannins and minerals such as phosphorus, iron and calcium which provides nutrition to hair and also causes darkening of hair. Hibiscus consists of calcium, phosphorus, iron, vitamin B1, riboflavin, niacin and vitamin C, used to stimulate thicker hair growth and prevents premature graying of hair (Jari Alander 2009). *E. officinalis* has strong anti-hyaluronidase activity which suggests the increased hyaluronic acid, and is highly beneficial for prevention of premature skin aging, i.e., wrinkle formation (Adil et al. 2010).

People of particular culture have knowledge about the plant utilization for different purpose but need to scientific touch.

IV. CONCLUSION

The cosmetic products used by human are definitely have some benefits and harms also. But the synthetic cosmetics should use with precaution. Although the various structures for the regulation and quality control of cosmetics around the world are quite complex and comprehensive, they should be more rigorous in the inclusion of new substances with toxic potential in the formulation of cosmetics to avoid damages to human health. To encourage improvements in the manufacture, marketing and use of natural cosmetic products by the population, it is necessary to apply a unified cosmetic-vigilance around the world.

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