

Cosmeceutical assets of ancient and contemporary ayurvedic astuteness

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Abstract

Cosmeceuticals are topical pharmaceutical hybrids intended to enhance the beauty that provides additional health-related function. Skin acts as a natural barrier between internal and external environments thus play an important role in vital biological functions such as protection against mechanical/chemical damages, microorganisms, and ultraviolet damage. All most all manuscripts of ayurvedic literature are full of cosmeceutical product, but these are spread throughout manuscripts along with their rationality. In the current scenario, different companies are manufacturing ayurvedic cosmeceutical product by taking some of the ingredients of different cosmeceutical formulation mentioned in ayurvedic texts. The basic approach of these two different groups of the formulation is different from each other, but their ultimate goal is to enhance the personal appearance of a person. It is observed that classical ayurvedic cosmeceutical formulation may act through improvement of the general condition of the person as well as the direct impact of skin and hair, whereas contemporary cosmeceuticals product enhances beauty mainly by the direct impact of skin and hair than general condition of the person.

Key words: Cosmeceutical, hair, skin

INTRODUCTION

Every creature of nature tries its best to look better. The human race is most appreciably inventive in this respect. All civilizations of the world are full of stories about attempt of human to appear more than what is inherited among them. In this course, there is not much difference between male and females gender. People trying to look better for enhancement of their own confidence, impress society along with several other personal, professional, and psychological reasons. Matter of fact is that application of cosmeceutical is a common phenomenon among all races of a human without any difference of geographical territory and time period of history.

The term "Cosmeceutical" was coined by Albert Kligman at the national scientific meeting of Society of Cosmetic Chemists in 1984, referring to topically applied products capable of making changes to the skin status.^[1,2] The word cosmetics is defined as a substance meant to be rubbed, poured, sprinkled or sprayed on or introduced into or otherwise applied to the human body for the purpose of cleansing, beautifying, promoting attractiveness, or altering the appearance. These substances

may be categorized into different groups such as skin care, hair care, antiaging, and fragrances, and are able to satisfy consumers' needs.^[3]

Since last two decades Global Beauty Market has grown up by 4.5% and among BRIC countries (Brazil, Russia, India, and China), it have been accounted for 21% of the global beauty industry in the year 2010 and their share may be increase 25% of the total market in 2015.^[4] This trend of love for cosmeceuticals is in continuation of the ancient period as it is evident from the narration of ancient ayurvedic literature. There is a great demand of cosmetics even during *Samhita* period (200 BC) to enhance the personal appearance of the person. The personal appearance of the person is affected by presence or absence of hair (*Atiloma*, *Aloma*),^[5] abnormal skin coloration (darkening or lightening skin), health status, etc. In classics, various formulations are mentioned to get rid of these abnormalities and these are categories in skin

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care, i.e., *Pandukarma* (restoration of normal skin color of scar), *Krishna karma* (Blackening procedure), hair care, i.e., *Lomashatan* (depilation of hair), *Romsanjanan* (hair growth promoters)^[6] and mainly used topically in form of *lepa*. In the current scenario, various pharmaceutical companies prepare the cosmeceutical product under section 3 (h) of drug and cosmetic act 1940 which also enhances the attractiveness of the person. It is the curiosity of mind that what may be pharmacological action formulations mentioned in section 3 (a) or section 3 (h) of drug and cosmetic act 1940 are having same or any difference in between them. So, here an attempt has been done to evaluate the probable mode of action of these formulations.

MATERIALS AND METHODS

References of cosmetics formulations are taken from the authoritative textbook of Ayurveda mentioned in schedule I of drug and cosmetic act 1940 and on another hand survey of different cosmetic formulations is done which are available in market produced and manufactured by the good manufacturing practices (GMP) certified pharmaceutical company and categorized in different groups. We have also gone through various scientific publications of reputed journals such as Pub med, Science direct, Springer link, Wiley, Google Scholar, and Taylor and Francis, and critically analyze these formulations regarding their probable mode of action.

Observation

Cosmeceutical preparation of classical manuscripts of *Ayurveda*, as well as GMP, certified companies' is depicted in Tables 1 and 2, respectively, along with their ingredients.

DISCUSSION

Cosmeceutical products are utilized by humans being for cleansing, beautifying, promoting attractiveness, or altering one's appearance, and these practices are found among all different peoples of the world irrespective of the nation.^[7,8] After screening the literature of *Ayurveda* as well contemporary science, it seems that various factors are responsible the personal appearance of the person such as health status (liver disease, chloasma, skin disorders, and surgical process), presence or absence of hair, and blood circulation to skin,^[5] so that these products may be divided into different categories that's may depend on the ingredients present in it.

Cosmeceuticals for Skin Care

Skin is the largest organ of the body which protects humans from the external environment and also reflecting the functional integrity of internal organ system. The skin

care product may increase skin regeneration, elasticity, smoothness, favorable change to skin^[9,10] and also stop the degradation of primary structural constituents of skin such as collagen, and elastin. These products may act by a different mechanism, i.e., protective from ultraviolet light, maintain healthy skin as well as add the gorgeousness of person by improving skin radiance.

Photo Protection and Antioxidants

Reactive oxygen species (ROS) are an initial molecule that leads to changes in physical appearance by clinical manifestations through the skin. Wrinkling and pigmentary changes are directly associated with premature photo-aging and considered as most important cutaneous manifestations either physical appearance or clinical manifestations, these changes may occur due to the action of ROS on the skin. The level of ROS, peroxide will be reduced by the presence of antioxidants due to their free radicals scavenging and repair oxidized membranes, etc.; thus, they neutralize the effect of ROS.^[11] *Haridra*, *Amalki*, *Madhuyashti*, *Chandan*, etc., are a common ingredient of both cosmeceutical formulations which are either licensed in section 3 (a) or 3 (h) of Drug and Cosmetic Act 1940. These ingredients are having antioxidant properties even at a low concentration significantly prevent oxidation of cell contents such as protein, lipids, carbohydrates, and DNA. In this way by reducing the concentration of ROS as well as prevention of oxidation of cell contents, these ayurvedic drugs reduce wrinkling changes which ultimately improve the attractiveness of person.^[12]

Skin Radiance

Skin radiance contributes the personal appearance; it depends on the blood supply to the skin, localized inflammation, and reflect in the form either darkling or lighting of skin. It is observed that *Nagkeshar*, *Manjistha*, and *Raktachandan* are occupied a significant seat in formulations classical than pharmaceutical. These ingredients are present in *Varnya* (Youthful Radiance) *Mahakashay*, i.e., drugs of these groups have ability to enhance the radiance or bright complexion of the skin.^[13] Apart from that *Manjistha* is reported as an anti-inflammatory agent, superior for skin diseases, liver disease^[14] and *Nagkeshar* improved atherosclerosis by increasing plasma oxygen diffusion and decreasing cholesterol and triglyceride levels.^[15] It is also observed that *Parad* (mercury) is present in classical formulation indicated for normalized skin radiance, and it is observed that mercury is common ingredient found in skin lightening soaps and creams,^[16] and its salts inhibit the formation of melanin, resulting in a lighting skin tone.^[17,18] Stratum corneum is the primary barrier of the skin and helpful in regulation of moisture by keeping inside in and outside out. Water from the stratum corneum gets evaporated quickly leading to dehydration causing dryness to the skin, and dry skin is prone to infection^[19] thus damaging skin as well as personal appearance and moisturizers prevent

Table 1: Cosmeceutical preparations in classical texts of Ayurveda

Serial number	Name of formulations	Ingredients	Indication	Book reference
1	<i>Twakasavarnikaran yoga</i>	Kaliyak (<i>Coscinium fenestration</i>), Agar (<i>Aquilaria agallocha</i>), Amrasthi, Nagakeshar (<i>Mesua ferrea</i>), Kanta (<i>Rubia cardifolia</i>), Rasottam (<i>Parad</i>)	To normalize skin color	Charak Samhita Chikitsa Sthan
2	<i>Varnakarlepa</i>	Dhyamak (<i>Coriandrum sativum</i>), Lakha of Pippal (<i>Fiscus religiosa</i>), root of veta, lahi (<i>Salix caprea</i>), Geru, nagkeshar (<i>Mesua ferrea</i>), Amrita sanga, Kasis	To normalize skin color	Charak Samhita Chikitsa Sthan
3	<i>Romanirharna yoga</i>	Shankha churna (<i>Terbinella pyrum</i>), Hartal, Amla dravya	To remove hair	Sushrut Charak Samhita Chikitsa Sthan
4	<i>Rakt- chandanadilepa</i>	Raktachandan (<i>Pterocarpus santalinus</i>), Manjistha (<i>Rubia cordifolia</i>), Lodhra (<i>Symplocos racemosa</i>), Kuth (<i>Saussurea lappa</i>), Phoolpriyangu (<i>Callicarpa macrophylla</i>), Vatankura (<i>Ficus benghalensis</i>), Masurkaaata (<i>Lens culinaris</i>)	Vyangn (Blemishes), Mukhkantivardhak	Sushruta Samhita Uttara Tantra
5	<i>Matu-lungadilepa</i>	Root of Bijaoranambu, Ghrita, Manahshila, Goshkrito rasa	<i>Mukhkantivardhak</i> , <i>Yovanpidikanasak</i> , <i>Kalimanashak</i>	Sushruta Samhita Uttara Tantra
6	<i>Indra-luptanasak</i>	Mulethi (<i>Glycyrrhiza glabra</i>), Nilkamal (<i>Nymphaea stellata</i>), Munakka (<i>Vitis vinifera</i>), Tilataila (<i>Sesamum indicum</i>), Ghrita, Madhu (Honey)	<i>Indralupta</i>	Sushruta Samhita Uttara Tantra
7	<i>Sharirdaugandhharyog</i>	Sireesh (<i>Albizia lebbeck</i>), Lamjjak (<i>Khas, Vetiveria zizanioides</i>), Nagkeshar (<i>Mesua ferrea</i>), Lodhra (<i>Symplocos racemosa</i>), Priyangu (<i>Callicarpa macrophylla</i>), Agru (<i>Aquilaria agallocha</i>), Kuth (<i>Saussurea lappa</i>), Chandan (<i>Pterocarpus santalinus</i>)	<i>Sharir-daugandhnasak</i>	Gada Nigrah
8	<i>Pandaya-udwartan</i>	Haldi (<i>Curcuma longa</i>), Chiraunji (<i>Buchanania lanzan</i>), Posta dana (<i>Papaver somniferum</i>), Chakramard seeds (<i>Cassia tora</i>), Sonageru, Karanjiguddi (<i>Pongamia pinnata</i>), Lalchandan (<i>Pterocarpus santalinus</i>), Chameli leaf (<i>Jasminum officinale</i>), Khas (<i>Vetiveria zizanioides</i>), Pilisarso (<i>Brassica Alba</i>)	Softness and glowing of skin	Rasa Tantra Sara & Siddhi Prayog Sangrah

skin dryness and also provide flexibility to the skin. *Aloe vera* is the most common ingredients among the cosmeceutical of pharmaceutical industry than classical formulation. It is well-documented that *A. vera* has moisturizing properties and indicated for skin soothing^[20] and when its sugar mixed with selected ingredients, it acts as excellent skin smoothening moisturizer.^[21] Along with this, it also has antibacterial and antifungal activities, which may help in the treatment of minor skin infections, such as boils and benign skin cysts and also inhibit the growth of fungi that cause tinea^[22] and also protect against radiation damage.^[23-25]

Cosmeceuticals for Hair

Specific pattern of hair, color, and style play an important role in the physical appearance and self-perception of a human.

Since ancient times hair is considered as an important aspect for personal appearance and normal and good condition of hair are may add personal, appearance,^[5,26] and hair disorders such as *Indralupta*, *Khalitya*, *Palitya* are also responsible for the cosmetic purpose.^[27] For improvement of beauty occurring due to hair nutrition and it disorders various *dravya* having *Roma Sanjanan*, *Roma Shatan*,^[6] anti-inflammatory properties and also improve the attraction to the person. It is observed that hair care formulation of a pharmaceutical company and classical text having a different composition as well as an indication, respectively. Hair care formulations of the pharmaceutical company contain mainly Reetha, Amla, Bhrigrajetc having hair cleanser, promotion of hair growth, and nourish the hair,^[28] i.e., specially for hair care but classical formulation *Tilataila*, *Mulethi*, etc., is indicated for *Indralupta* (localized disorders) and improve hair quality and quantity. Ingredients, such as *Shashyaka*, *Kasis*

Table 2: Cosmeceutical preparations by pharmaceutical companies

Serial number	Brand name	Ingredients	Indication	Manufacturer
1	Vicco turmeric cream	Turmeric (<i>Curcuma longa</i>), Sandalwood oil (<i>Santalum album</i>)	Skin care	Vicco Laboratories, India
2	No Mark ayurvedic cream	Amla (<i>Embllica officinalis</i>), Aloe vera (Aloe barbadensis), Nimbu (<i>Citrus limon</i>), Gulab (<i>Rosa damascus</i>), Pudina (<i>Mentha arvensis</i>), Kayaputi (<i>Melaleuca leucadendra</i>), Oil Karpooora (<i>Cinnamomum camphor</i>) Cream Base q.s	Skin care	Ozone (UK) Ltd
3	Clarina	Ghrita-kumari, Almond (<i>Vatada</i>), Indian Madder (<i>Manjishtha</i>)	Acne vulgaris, Acne rosacea	The Himalaya Drug Company
4	Moha: Wrinkle care cream	Ghrit kumari (<i>Aloe vera</i>), Almond oil (<i>Prunus amygdalus</i>), Lemon Oil (<i>Citrus Limon</i>), Orange oil (<i>Citrus aurantium</i>), Wheat germ oil (<i>Tritium vulgare</i>)	Restores the skin's natural flexibility	Charak Pharmaceutical
5	Moha Moisturizing Lotion	Kumari (<i>Aloe barbadensis</i>), almond oil (<i>Prunus amygdalus</i>), coconut oil (<i>Cocos nucifera</i>), sunflower oil (<i>Helianthus annuus</i>), cream base	Skin dryness skin damage due to pollution	Charak Pharmaceutical
6	Patanjali Kesh Kanti	Reetha (<i>Sapindus trifoliatus</i>), Amla (<i>Embllica officinalis</i>), Bhringraj (<i>Eclipta alba</i>), Henna (<i>Lawsoniainnermis</i>), Shikakai (<i>Acacia concinna</i>), Neem (<i>Azadirachta indica</i>), Jatamansi (<i>Nardostachys jatamansi</i>), Tagar (<i>Valerianawallich</i>), Bakuchi (<i>Psoralea corylifolia</i>), Haldi (<i>Curcuma longa</i>), Giloy (<i>Tinospora cordifolia</i>), Ghrit Kumari (<i>Aloe vera</i>), Amahaldi (<i>Curcuma amada</i>)	Dandruff	Divya Yoga Pharmacy
7	Tejus beauty cream	Ghrit Kumari (<i>Aloe vera</i>), Kutaj (<i>Holarrhena antidysenterica</i>), Manjishta (<i>Rubia cordifolia</i>), Anantmool (<i>Hemidesmus indicus</i>), Chandan (<i>Santalum album</i>), Daruhaldi (<i>Basberia serrata</i>)	Helps to Glow skin and reduces Wrinkles	Divya Yoga Pharmacy
8	Erina	Nimba (<i>Azadirachta indica</i>), Satahva (<i>Anethum sowa</i>)	Deodorant	Himalaya Drug Company

Hartal, *Shankha Churna*, *Manashila*,^[29] are indicated in the classical formulation for removal of excess hair; ingredients, such as *Bhringraj* and *Tilataila*, are indication promotion as well growth of hair.^[30,31] In Nut cell, we can say both pharmaceuticals, as well as classical formulation, improves physical appearance, but classical formulations act through nourish hair and treat localized disorders which affect hair pattern, etc., and pharmaceutical formulation mainly acts through nourish the hair.

Health Status

Beauty of person also depends on the physical status of the body, i.e., like *Atisthul* (obese) or *Atikrish* (emaciated) as well as the general appearance of the person like the presence of *Vyanga*, surgical scar, and inflammatory changes to the skin. *Dravya* like *Kustha*, *Manjistha*, *Mulethi*, *Lodhra*, *Priyangu* present in classical formulation among these *Kustha* having weight-reducing properties^[32] as well as used for treatment of

Chronic skin disorders^[33] and *Manjistha* reported for blood purifier,^[34] *Mulethi* (*Glycyrrhiza glabra*), *Lodhra* (*Symplocos racemosa*), *Priyangu* (*Callicarpa macrophylla*) is mentioned in *Sandhaniya* (cell regeneration) *mahakashya*,^[35] reported for *Vranaropana* (wound healing), properties^[36,37] while *Haridra* present in both type of formulation having anti-inflammatory^[38] and antioxidant properties. *A. vera*, *Annantmool* (*Hemides musindicus*), and different oil such as almond oil, orange oil, coconut oil, etc., mainly present in pharmaceutical formulations among them *A. vera* having moisturizing properties,^[39] *Annantmool* (*H. musindicus*) enhance skin complexion,^[40] and oils having different vitamins which nourish the skin.^[41]

Ancient Ayurvedic Cosmeceuticals as Rasayana (Anti-Aging)

Aging, a complex biological process influenced by a combination of endogenous or intrinsic factors such as

genetics, cellular metabolism, hormone and metabolic processes and exogenous or extrinsic factors such as chronic light exposure, pollution, ionizing radiation, chemicals, and toxins.^[42] These factors are well-managed by *Rasayana dravya*, i.e., medication for immune promotive, anti-degenerative and rejuvenative health care which ultimately prevent aging and improving the quality of life in healthy as well as diseased individuals. These *dravya* promote nutrition through improving Agni (digestion, metabolism) and by promoting the competence of *Srotas* (microcirculatory channels in the body)^[43] which determine skin health and youthfulness. Besides this *Rasayana dravya* reduce stress,^[44] free radical concentration and enhance immunity^[45] that cause structural, physiological alterations, and skin appearance.^[46,47] In cosmeceuticals formulation *dravya*, such as *Amlaki*, *Nagkehsar*, *Guduchi*, and *Manjistha*, are present in both type of formulation and reported for *rasayana* properties, i.e., having immune-modulator, antistress, antidegenerative properties, and improving *Agni* (digestion and metabolism) which delayed the aging process and maintained youthfulness.

At present, the most of the businesses houses-related to cosmeceutical products are using word “Ayurveda” as the brand ambassador of their product. It’s a sorry affair that only a few of these are possessing their claimed characteristics. Most of them are existing in a scenario only due to their market strategies of promotion by film/cricket stars and commission to retailers. These so-called contemporary ayurvedic cosmeceuticals products are serving more its proprietors in comparison to its common consumers.

To control this menace, in 2010 Ministry of AYUSH, Government of India framed new rules for licensing of ayurvedic Cosmeceuticals under rule 158 B of Drugs and Cosmetics Rule, 1945.^[3]

CONCLUSION

Abundance of Ayurvedic Cosmeceuticals is at every level of society from home remedies to branded products. Moreover, on the virtue of phyto - constituencies of herbal plants and its pharmaceutical procedures, classical ayurvedic cosmeceuticals are having a major lead over contemporary ayurvedic cosmeceutical products on account of their cosmeceutical, nutraceutical, and therapeutic characteristics.

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