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Ayurvedicophoric Designing Of Facial Cosmeceutical Models

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Abstarct:
Akshay et.al [1] proposed four types of drug-design, based on the rational models. Rationally designed ethnomedicinal formulations by traditional or indigenous natural ingredients should adopt the concept of ayurvedicophore[2]. The extension of this applied for designing of ayurvedicphoric models of facial life – style cosmeceuticals. We devised life-style, Anti-acne and Anti wrinkle ayurvediccophoric facial cosmeceuticals , having different herbal compositions with relevant bioactions for achieving the desired, therapeutical objectives.

1.Introduction

Herbal medicines are the enantiomers of nutraceuticals. This principle implies that orthobiosis is essential for the creative performance of human physiological threshold. The facial skin is the most exposed portion of human body, therefore, facial maladies can be holistically treated using ayurvedic wisdom of natural products. The avoidance of those intakes which disturb the normal physiological culture of cells, tissues and organs is desirable. Ayurvedic facial formulations[3-7] behave as interpersonal physiological companions. The ayurvedic basis of facial comeceutical was innovatively viewed with chemomedicinal rationales. An ideal cosmeceutical for facial beauty, look, and charm must have certain bioactions which qualify the status of life-style drugs[8-13]. They are:

- Sustainable moisture releaser for revitalizing effect and skin care
- Promoter of blood flow to facial area for nutrients supply
- Healing efficacy for preventing or arresting facial disorders

The facial acne and wrinkles are main culprits of psychosocial setbacks, therefore, anti-acne and anti-wrinkle formulatons are the most demanding in modern- facial cosmetological market. The concept of ayurvedicophore[2] design symbolizes " jai ayurved aoragyam " slogan. It utilizes the synergy of natural herbs, vitamins, minerals, fruits, milks and clays. The biofunctionalism produces potent facial vitalization and regeneration.

This knowledge was considered for delineating essentials of three different types of ayurvedicophoric models of facial cosmeceuticals, with multiple bioactions

- Life-style ayurvedicophoric model of facial cosmeceutical
- Anti-wrinkle ayurvedicophoric model of facial cosmeceutical
- Anti-acne ayurvedicophoric model of facial cosmeceutical

2.Theoretical Methodology

Facial skin has two chief proteins. They provide support and strength. Keratins are fibrous, structural proteins of epidermal matrix (outer waterproof surface of skin) collagen and elastin give strength and controls muscular motions of facial muscles.

To advance ayurvedicophoric rationality for designing requires activations of biological stes in syngeristic manner for the desired therapeutics target.The herbal compositions of forty four ayurvedic facial cosmetics were studied. The biofunctions of herbal constituents in facial formulations are given in table-one

Herbal constituents	Functions
Almond	Nourishes and moisturizes the skin
Almond oil	Moisturizes and nourishes the skin
Aloe vera	Soothing and rejuvenating action, moisturizes and softens skin, cleaning action
Aloe vera and orange extract in water	Protect UV radiations
Apricot	Moisturizes the skin
Cherries and gingers	Reduce fine lines and wrinkles, and firms up the skin
Chironji	Make skin fair
Coriandrum	Antiseptic, moisturizing, cleansing action
Grape seed extract and apple extract	For younger look and anti-ageing effect
Grape seeds and penta peptides	Regulate production of melanin, works on collagen structure to make it firm
Jojoba	Reduce wrinkle and fine lines
Lemon	Exfoliate dead cells
Liquorice (mulethi)	Make skin glow and give visible radiance, control melanin the skin darkening pigment
Lodhra	Reduce theskin irritation and lightens the skin color
Long-dan extract	Slow down skin darkening and gives healthy glow
Marigold	Powerful anti-inflammatory, has estrogenic action so useful regulator of female hormones, anti-microbial and anti-parasitic
Milk	Nourishes and make the skin glow
Mineral clay	Absorbs excess of oil and gives six hours matte effect
Mulberry extract	Slows down melanin production, protection from UV radiations
Nano-white	It is an advanced melanin control device for specific inhibition of tyrosinase activity
Orange peels	Refreshing, tightening and moisturizing action
Oranges	Remove blemishes
Safforn	Rich in carotinoids and vitamins for its fairness enhancing properties
Sandal	Reduce skin irritation, lightens skin color and gives cooling sensation
Tulsi and Aloe-vera	Removes pimples, marks, black spots and dark circles
Turmeric	Heels, protects and removes blemishes, anti-acne and anti-inflammatory action
Vitamin-C	Stabilizes the collagen mass on the skin (its deficiency causes wrinkles)
Vitamin-A	Encourage growth of healthy skin tissues
Vitamin-E	Protect skin from free radicals
Vitamin A,C,E	Protect from sun pollution and premature ageing
Vitamin-B_3 (niacinamide)	Melanin inhibitor
Vitamin B_3 + ZnO_2	Deep penetrating action
Walnut	Removes dead skin cells, helps in regeneration and nourishes skin
Wheat germ oil	Increase youthfulness and act as screen which reduce harmful effects of UV-rays
ZnO_2	Protect the skin from sun radiations

Table 1: Biofunctions Of Herbal Constituents[7,14,15] Present In Facial Ayurvedic Formulations

3.Life Style Ayurvedicophoric Model Of Facial Cosmeceutical

Facial elegancers promote fairness, glow, charm, softness and youthfulness. Melanin darkens the skin, produced by melanocytes and transported to adjacent skin cells by a process called melanin load. The solar UV radiation also reduces the fairness. The Matte effect of phytocosmetics enhances fairness. The also have depigmentation and scar removing effects.

Melanin is polymeric substance[16-24], gives human skin color by expression of melanocyte. Melanogenesis[26,27] occurs in the basal area of the dermis and has set of three processes

- Activation- melanin production is initiated
- Synthesis- melanin produced by melanocytes
- Expression- melanin is transported to the surface of the skin

Hyperpigmentation is an over expression of melanin, producing freckling, lentigines and melasma (discoloration). Hydroquinone and its derivatives, arbutin and kojic acid inhibits melanocyte tyrosinase thereby controlling the pigmentation related facial disorders. The fruits that have pites cherries, apricots, apples and blueberries have bioflavonoids which contributes to fairness and protecting facial disorders.

The duration of fairness achievements ranges from one week to six weeks. It is longer in males than females. Recently dermatological research compared male and female skin and found that male's skin is more prone to stress, fatigue and harshness of shaving, therefore their facial cosmetics must have anti-stress and anti-fatigue ingredients.

The natural acid reserve and vitamins help in exfoliation of the pigments, scars, freckles for preserving good facial looks. The vitamin B_{12} and vitamin B_6 of phytocosmetics promote the production and development of erythrocytes for the improved blood circulation and nourishment.

The prime aim of such synergy of bioactions is the promotion of fairness and improvement of elegance of appearance. This ayurvedicophoric model is composed of six bioactions

- Melanin inhibitor = fairness enhancer
- Skin softener = suppleness, softness, youthfulness increased
- Skin moisture sustainer = cheerfulness improver
- Biovitalizer = glow/lusture
- Adaptogen = reducer of stress relaed facial shrinkages

Ayurvedically proven facial elegancy promoters are:-

- Turmeric, saffron, milk, honey, cucumber, lemon, bhringaraj
- Fruit extracts:- watermelons, oranges, kiwis, winter cherry, mulberry, black plum, carrot
- Flowers:- hibiscus, white willow, marigold, rose, jasmine, bearberry

Plant extracts:- rosemary, lavender, Indian berry, butter tree

- Chironji, manjistha, sandalwood, seasame, groundnuts, apricot and almond oil
- Peptides and mineral clays

4.Anti Wrinkle Ayurvedicophoric Model Of Cosmeceutical

The objective of this is preventing, retarding, reversing wrinkles or skin atrophy. The wrinkle characterized the facial ageing. The process of wrinkle formation should be well understood for designing an effective anti-wrinkle ayurvedicophore.

A dynamic wrinkle model in facial animation and skin ageing[28-30] revealed that expressive wrinkles appear during facial at all ages and become permanently visible over time. An older face more wrinkles than younger. The female's face has finer and less pronounced wrinkles than males as its skin is thinner and softener than that of male. The skin change is mainly related to the change of the elastic and the collagen fibers. The appearance and movements of the face involve the bones, muscles, skin and connective fat tissue. As age advances dermis loses collagen and elastin, therefore, skin becomes less elastic and stretchy and less thick. The biological consequences is the sagging of epidermis and wrinkles appearance. The repetitive type of facial motions produces mechanical lines. Smiling or rowning can cause laugh lines or frown lines on the forehead. The formation of facial wrinkles linked to loss of skin's elastic properties. It leads to the wrinkles formation through paracrine pathway between keratinocytes and fibroblasts by degradation of elastic fibres from elastases. UV radiation stimulates the activity of the fibroblast elastases i.e inhibitor of the fibroblast elastases reduce the damage of elastic fibres.

Anti-wrinkle ayurvediccophoric model of facial cosmeceuticals should be composed of:

- Anti-inflammatory
- Anti-oxidant
- Anti-ageing nutrients
- Skin cell replinisher
- Muscle strengther/degeneration preventer of collagen proteins
- Potent inhibitor of fibroblast elastase

5.Anti Acne Type Ayurvedicophoric Model Of Facial Cosmeceutical

The facial look is spoiled by emotional stress[31] , discomfort or depression which changes the look of facial skin by rushes, hives, acne-flare up, Pieker's nodule, and Acne exoorieee[32,33].

The anti- acne type of composition generally has two or more aqueous phases. It is water in oil type of emulsion. The anti-acne ayurvedicophoric model of facial cosmeceutical is actually facial hygiene enhancer. It is made of seven bioactions

- Comedone remover
- Anti inflammatory
- Sebum reducer
- Penetration enhancer
- Moisture sustainer
- Oxidative stress reducer
- Potent inhibitor of fibroblast elastase

6.Discussion And Result

The ayurvediccophoric designing has holistic approach of ayurvedic cosmetology. The botanical compositions of marketed forty four ayurvedic formulations were studied. They include herbs, fruits, flowers, honey, animal milks, vitamins and minerals clays. Their compatible bioactions have cosmetical value. This deisgning is actually based on the broad spectrum synergism of diverse biological activities with effective therapeutical compliance. This led us to derive three models of ayurvedicophoric facial cosmeceuticals. Life style model should be promoter of fairness and youthfulness, therefore, matte effect of phytocosmetics is desirable for fairness. Melanin inhibition, biovitalization and blood flow enhancing are chief bioactions for this model.

6.1.Anti-Wrinkle Model

Involves collagen type I protiens and fibroblasts. The former maintains the physical integrity of skin's connective tissue. The precursors and nutrients for the biosynthesis of collagen are essential for anti- ageing effect. The loss of skin's elasticity causes wrinkle formation. The fibroblasts have elastases which damage 3D- structure of elastic fibrous proteins, leading to appearance of wrinkles. The stimulation of estrogen receptors present in fibroblasts promotes the production of facial proteins. This has positive anti-wrinkle effect. The strength of collagen, inhibitor of fibroblast elastases and anti-ageing nutrients are core elements of this model.

6.2.Anti-Acne Model

It involves emotional stress and depression. They spoil facial skin by comedones, sebum and oxidative stress Topical anti-acne ayurvedic gels have potent comodolytic activity. The anti-acne model is composed of oxidative stress and sebum reducers and comedone remover.

The ayurvedicophoric designing does not prefer single molecular entity for specific action. The biological complementariness of ayurvedicophoric entities (chemical structures of multiple bioactions) is the essence of ayurvedicophoric approach. Possibly it is the most natural way of balancing the functional deficiencies and preventing deformities of facial life-style drugs.

7.Conclusion

Ayurvedicophoric models of facial cosmeceuticals utilized the pioneered concept of ayurvedicophore for designing life-style, anti-acne and anti-wrinkle types of models where bioactions are coined in the modern formulations for the younger facial look. The maladies of aged facial skin can be ayuvedically rectified by phytocosmetics for charming glow on face. This innovative approach is based on selected multiple bioactions which show biological complementariness of ayurvedicophoric entities for nice facial looks by replenishing the functional deficiencies and preventing the pathological deformities. The facial beauty and handsomeness have life-style appeasement for happy and creative living, which is authenticated by the following photographs

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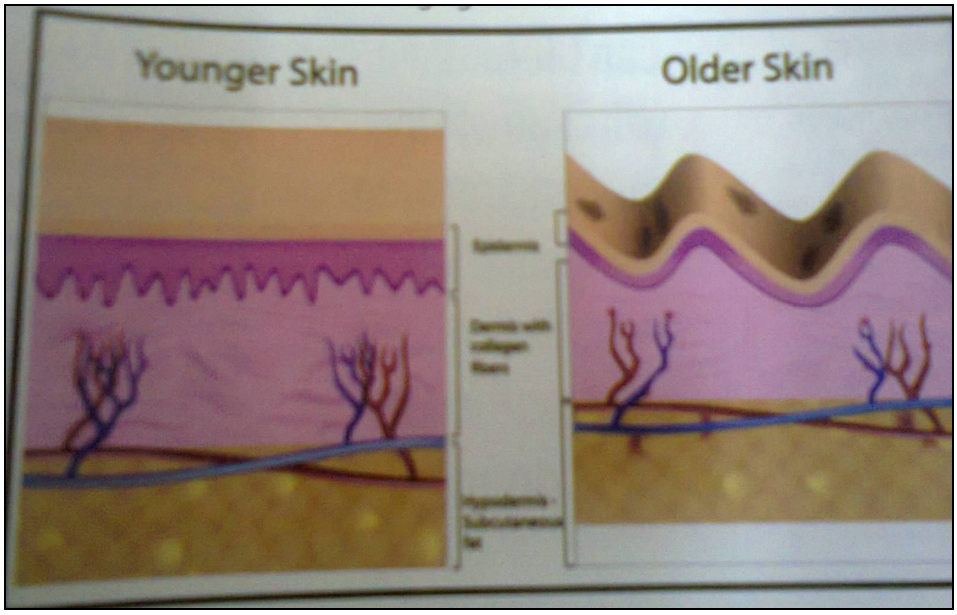

Figure 1

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