

Unit 4: Cosmeceuticals of Herbal and Natural Origin

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4.1 Cosmeceuticals: the borderline class

Cosmeceutical is a trade and teaching word, not a legal category in Indian law, and the student should say so plainly before using it. It names cosmetics positioned at the border with therapy: products built around functional ingredients and presented for a defined surface condition, ageing appearance, dryness, sun exposure, hair fall in the cosmetic sense, or uneven tone in the cosmetic sense, while remaining cosmetics in law because they act on the surface and make appearance claims. The syllabus devotes a full unit to cosmeceuticals of herbal and natural origin because the herbal industry lives largely in this borderland, and the intellectual discipline of the unit is to keep both feet honest: to know the physiology of Unit 3 well enough to design a serious functional product, and to know the boundary of Section 1.1 well enough never to sell that product with drug claims. Each class below is therefore described by its surface function and its formulation logic, and no efficacy claim is stated for any of them.

Cosmeceutical classes by task		
HAIR CARE	Scalp and shaft	Growth formulations, oils, colorants
CLEANSING PLUS	Wash and condition	Shampoos and conditioners
COMPLEXION	Even appearance	Fairness, vanishing, foundation creams
PROTECTION	Surface defence	Anti-sunburn preparations
MOISTURE AND ODOUR	Hydration, freshness	Moisturizing creams, deodorants

Appearance claims only: the cosmetic boundary holds in every row

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Figure: The cosmeceutical classes by task. Every class is a Unit 3 physiology applied with a functional ingredient, inside the cosmetic boundary of claims.

4.2 Hair growth formulations

Hair growth formulations are scalp preparations, lotions, tonics and oils, built around herbal materials of traditional use for the hair and scalp. Their cosmetic task, stated within the boundary, is care of the scalp environment and the existing hair: cleansing and conditioning the scalp surface, reducing breakage of the shaft by lubrication and conditioning so that hair is retained in appearance, and supporting the normal look and density of the hair. Their formulation logic follows Unit 3: a vehicle that spreads over the scalp and reaches the follicle openings, aqueous, hydroalcoholic or oily by product type; functional herbs of the traditional hair shelf, amla, bhringraj, brahmi and hibiscus among the standard names, in standardised extract or oil form; and supporting families, humectants, fragrance and preservative, chosen for a leave on scalp product. Standard points are those of the tonic class of Section 3.10 with scalp safety added: the preparation lives on skin for hours, so its irritation and sensitisation testing in Unit 5 is not optional. The

examination answer that keeps this discipline, describing traditional use as traditional use and cosmetic function as cosmetic function, is the answer that earns full marks.

4.3 Shampoos

The shampoo is the defining hair cleanser: a surfactant system in water, built to remove sebum, surface scale, dust and product residue from hair and scalp, and to leave the hair clean, manageable and pleasant. Its architecture is the clearest example of the surfactant system teaching of Section 2.3: a primary anionic cleanser for detergency, secondary surfactants, amphoteric and nonionic, for foam quality and mildness, conditioning agents that deposit lightly on the damaged, negatively charged parts of the shaft, thickeners that give the product its pouring body, pearlisng and opacifying agents where the product's look requires them, fragrance, colour, preservative, and sequestering agents against hard water dullness. Judgement is by cleansing in use, foam quantity and stability, pH in the mildly acidic to neutral working range of the class, viscosity, conditioning feel, and eye and scalp mildness. Herbal shampoos carry the traditional washing materials of Indian practice, the saponin bearing materials such as reetha and shikakai in extract or powder derived form, and herbal extracts for identity and conditioning roles, within the same surfactant architecture: a purely traditional wash and a modern herbal shampoo are cousins, and the modern product is standardised where the traditional wash is variable, which is the whole commercial argument of the subject in one sentence.

4.4 Conditioners

Conditioners are the complement of shampoos: where cleansing strips and leaves the shaft rough, static prone and tangle prone, conditioning restores surface order. Their active family is the cationic surfactants and fatty materials of Section 2.3: positively charged conditioning agents adsorb onto the damaged shaft, lay the cuticle scales flatter, reduce friction between fibres, reduce static, and so give softness, shine and combability. Forms divide into rinse off conditioners applied after shampooing and left briefly before rinsing, leave in preparations in lighter systems, and the cream and mask forms for intensive conditioning. Herbal conditioners add plant oils, butters and extracts to the same cationic base, and the class is judged by its measurable surface effects, wet and dry combing ease, feel and shine, never by claims to repair the shaft, which being dead keratin cannot be repaired, only coated, protected and kept.

4.5 Colorants and hair oils

Hair colorants divide by the depth of their chemistry, and the classification is the teaching. Temporary colours deposit pigment on the shaft surface and wash out. Semi permanent colours use small colour molecules that enter the cuticle region and leave over successive washes. Permanent colours work inside the cortex by oxidation dye chemistry, small precursors entering the shaft and coupling there into large coloured molecules that cannot wash out, the strongest chemistry in cosmetic practice and the class with the most serious sensitisation discipline, patch testing before use being its standing rule. The herbal colorants of this subject work by the older route: henna, whose colouring principle lawsone binds keratin and gives its characteristic red orange stain, and indigo, used with or after henna for brown to black shades, together with the plant materials used in traditional darkening preparations. Their teaching points are standardisation of the plant powder, purity against adulteration with synthetic dyes and metallic salts, which converts a simple herbal product into a hazard, evenness of colour, and honest description of the shade range plant colours can reach.

Hair oils are the simplest and oldest hair preparations: oils, plain or herb infused, applied to scalp and shaft for lubrication, shine, reduced friction and breakage in handling, and massage of the scalp. Coconut oil is the characteristic Indian base, with sesame and other fixed oils in regional practice, infused or processed

with the traditional hair herbs to give the herbal hair oils of commerce. Their standards are those of any oil: purity and constants, freedom from rancidity, clarity and sediment, fragrance stability, and the standardisation of the herbal processing where the product claims it.

4.6 Fairness formulations

Fairness formulations are the complexion class of Indian cosmetic practice: creams and lotions presented for an even, bright appearance of the facial skin. Their honest cosmetic mechanisms, and the only ones stated in these notes, are surface mechanisms: cleansing and removal of surface dullness, moisturizing that makes the surface reflect light evenly, sun protection that limits further tanning unevenness where the product carries it, fine powder and film effects that even the appearance of tone, and exfoliating action in the pack and scrub relations that removes loose surface scale. Formulation follows the cream architecture of the next section with complexion herbs of traditional use, liquorice, turmeric, sandalwood and aloe among the standard names, in standardised form. The student's duty in this class is precision of language: appearance, evenness and brightness are cosmetic words; changing the skin's melanin biology is a drug claim, and Section 3.2 has already fixed the physiology that keeps the two apart.

4.7 Vanishing creams and foundation creams

The vanishing cream is the classical oil in water cream built on a stearic acid soap system: a light cream that spreads, sets to a dry, matte, non greasy film and seems to vanish into the skin, serving as a powder base and light day cream. Its character comes from its structure: a high proportion of stearic acid partly converted to its soap in manufacture, giving body and the characteristic pearly, matte finish, with humectant against drag and dryness. The foundation cream is its pigmented descendant: an emulsion carrying skin tone pigments, giving colour, coverage and a base for face powder and makeup, judged by shade match, even spreading without streaking, coverage without heaviness, wear through the day, and compatibility with the powders used over it. Both classes teach the same emulsion lesson from opposite ends: the vanishing cream shows how much character the fatty acid and soap structure alone can give, and the foundation shows the pigment dispersion discipline of Section 2.6 working inside an emulsion, so a foundation fails by streaking and shade drift exactly where a lipstick fails by grain and colour drift.

4.8 Anti-sunburn preparations, moisturizing creams and deodorants

Anti-sunburn preparations, the sunscreen class, protect the skin surface against sunburn from ultraviolet radiation by absorbing, scattering or reflecting the radiation before it acts. Their working materials divide into the organic ultraviolet filters that absorb defined wavebands and the inorganic materials, titanium dioxide and zinc oxide in standard practice, that scatter and reflect across the spectrum, held in an emulsion or lotion film that must spread evenly and stay in place, since protection fails wherever the film is thin or missing. These notes state no sun protection factor values and teach no rating claims: the class is taught by its mechanism, its film discipline, water resistance as a product property, and the standardisation duty that a protection product must be tested by the methods of Unit 5 rather than described by adjectives. Herbal anti-sunburn products carry plant materials with traditional sun care use inside the same film logic, and meet the same testing duty.

Moisturizing creams answer the dry skin physiology of Section 3.1 by three cooperating mechanisms, the standard teaching triad: humectants of Section 2.4 hold water in the stratum corneum; emollient oils of Section 2.5 smooth and fill the surface; and occlusive films slow water loss from the surface to the air. A moisturizing cream is an emulsion balanced among the three, light lotions humectant led for normal skin, richer creams oil and occlusion led for dry skin, judged by the measurable rise and retention of surface hydration, by feel, and by stability of the emulsion that carries the system.

Deodorants close the unit at the apocrine physiology of Section 3.1: body odour is produced when skin bacteria act on apocrine and sebaceous secretions, and a deodorant answers it by reducing the bacterial action, absorbing or masking odour, and carrying fragrance, in sprays, sticks, roll ons and creams. The class is distinguished from antiperspirants, which reduce sweat output itself by astringent salt action at the duct: many products combine both ideas, but the examination distinction is clean, deodorant against odour, antiperspirant against wetness. Herbal deodorants use aromatic and traditionally antibacterial plant materials and fragrance oils within the same mechanisms, and their safety testing follows the axillary site, warm, occluded and often shaved, which is among the more demanding sites in cosmetic safety work.

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The cosmeceutical formulation pattern
  Surface condition named in cosmetic terms
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      v
  Physiology of the site recalled (Unit 3)
      |
      v
  Functional herb selected, standardised form
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      v
  Base class built (cream, lotion, oil, wash)
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      v
  Compatibility and stability proven (Unit 2)
      |
      v
  Quality and safety tested (Unit 5)
      |
      v
  Appearance claim only, never a drug claim
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