Quadrant II – Transcript and Related Materials

Programme: Bachelor of Science (Second year)

Subject: Chemistry

Course Code: CHS 102

Course Title: Chemistry of Cosmetics and Perfumes

Unit: 03

Unit Title: Cosmetic Formulation, Principles and Preparations

Module Name: Classification of Perfumes. Perfume ingredients listed as allergens. Deodorants, antiperspirants and artificial flavours.

Name of the Presenter: Ms. Priyanka R. Fernandes

Notes

- Perfumes are classified into **five major groups** on the basis of concentration of fragrance and duration of lasting:

Class	% of aromatic compound	Duration (hours)
Parfume (perfume)	20-30	6-8
Eau de parfume	15-20	4-5
Eau de toilette	5-15	2-3
Eau de cologne	2-4	2
Eau fraiche	1-3	2

Perfume Ingredients listed as Allergens:

INCI Name (perfume allergens)	Found in
Alpha isomethyl ionone	N/A
Anise alcohol	Honey, essential oil of Anise
Benzyl alcohol	Apricot, Almond
Benzyl benzoate	Essential Oil of Jasmine
Cinnamal	Essential Oil of Cinnamon, Hyacinth
Citral	Essential Oil of Lemon, Orange peel, Eucalyptus, Grape fruit, Melon, Raspberry
Citronellol	Essential Oil of lemon grass, ceylon
Coumarin	Woodruff, sweet clover
Eugenol	Essential oil of clove, Basil sassafras, camphor
Geraniol	Rose oil, orange, rose, lavender

Deodorants:

- Deodorant is a substance that is applied to the body to prevent body odour caused by the breakdown of perspiration by bacteria.
- A deodorant masks and/or reduces axillary odour through the use of a fragrance or an antimicrobial agent.
- They are regarded as cosmetics and have a ***non-therapeutic effect*** on the body.
- They come in the form of aerosols, gels, sticks, powders and liquids.

Function of Deodorants

- It works by converting the short chain fatty acids (which cause body odour) to metal salts. Generally, these short chain fatty acids are acted on by zinc oxide.
- A zinc salt of the short chain fatty acid is formed in accordance with the following reaction and the odour disappears.

$$2RCOOH + ZnO \rightarrow (RCOO)_2Zn + H_2O$$

- Plant extracts which contain a lot of such substances as *flavonoids* and *chlorophyll* are also used for this purpose.

Types of Deodorant Cosmetics:

Deodorant Lotion

- Deodorant lotions are liquid-form deodorants containing large amounts of ethyl alcohol which give a very good cooling sensation.

Examples of this type are:

i) Spray type which uses no propellant (natural spray)

ii) Roll-on type which is applied using a revolving ball

- When the body odour is not very strong, it can be masked with a perfume or **eau de cologne.**
- These are types of cologne called **deodorant cologne** which achieve a stronger deodorant effect through the addition of the *antibacterial agents.*
- Essential oils with bacteriostatic properties are also marketed as deodorant perfumes and **deofragrances.**
- Deodorants which include a cellulosic plant fibre to absorb perspiration was also launched as **deoperspirants** but with limited success.

Composition of Deodorants:

- Deodorants exert antibacterial action on the organism which break down sweat.
- The earliest formulations were based on zinc oxide and boric acid.
- Later hexachlorophenes were used successfully till it was banned and replaced by triclosan and zinc phenol sulphate.

Antiperspirants:

- Antiperspirant is an astringent preparation that is applied to the skin to decrease perspiration. It has an effect on a bodily function, eccrine sweating.

Function of Antiperspirants

- Many products suppress the production of sweat through the use of pharmaceutical agents with a strong astringent action such as zinc paraphenolsulfonate, citric acid, various aluminium and zirconium salts.
- Among such substances, aluminium compounds are in very common use, particularly aluminium hydroxychloride.
- It has a high degree of flexibility; is capable of being dissolved in water for liquid preparations and has been incorporated as a powder in dispersion and aerosol types.

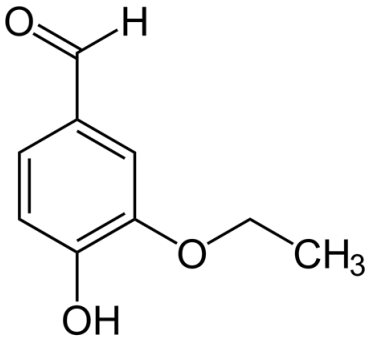
Major Differences between Deodorants and Antiperspirants

Deodorants	Antiperspirants
Has a topical effect (cosmetics)	Has a therapeutic effect (OTC)
Does not reduce amount of sweat	Reduces sweat secretion
Contains adsorbent, fragrance and germicide	Contains adsorbent, fragrance, germicide and astringent
Works by reducing bacterial action	Works by temporarily plugging the sweat glands
Aluminium free	Contains aluminium
Deodorant is not antiperspirant	Antiperspirant is a deodorant

What are Artificial Flavours?

- Artificial flavours are chemical mixtures that mimic a natural flavour in some way.
- The term artificial flavour means a substance, the function of which is to impact flavour that is not derived from a spice, fruit, vegetable etc.
- Ingredients that comprise artificial flavours are chemicals that were not originally sourced from nature.

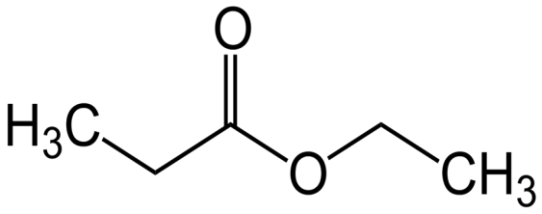
Examples:



Ethylvanillin $C_9H_{10}O_3$

Strong vanilla flavour used in chocolate

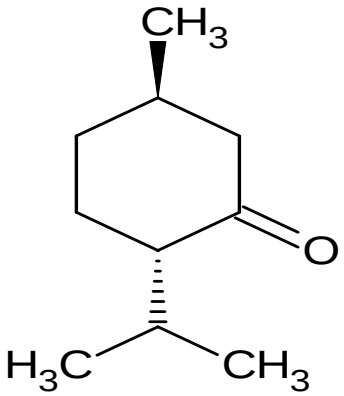
IUPAC: 3-ethoxy-4-hydroxybenzaldehyde



Ethyl propionate $C_5H_{10}O_2$

Fruity flavour

IUPAC: Ethyl propanoate



Menthone $C_{10}H_{18}O$

IUPAC: 2-isopropyl-5-methyl cyclohexanone