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Review Article

A brief review on various toxins present in cosmetics

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Abstract

Our body is the largest organ, where on average people put at least 9-15 personal care products everyday that means approximately 126 different ingredients on skin. Along with cosmetics ingredients toxins are too absorbed in skin in just 90 seconds. Cosmetics are used to enhance or protect appearance or odor of the human body. These toxins agents present in cosmetics cause various bad effects to body, like photo allergy, skin dryness, hair graying, and various kinds of cancer. Here is the list of all the ingredients which are used in cosmetics as preservatives or for sake of stability of formulation and would cause toxic effect to body

Key Words: Toxins, cosmetics,

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1. Introduction

Cosmetics are articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance [1]. A recent study found that an average adult uses nine cosmetic products daily. More than 25% of women use 15 or more.[2] Cosmetics, toiletries, and skin-care products, including sunscreens, quite frequently cause adverse reactions,[3] and are commonest single reason for hospital referrals with allergic contact dermatitis.[4] It is estimated that 1ñ3% of the population are allergic to a cosmetic or cosmetic ingredient.[5] In one American survey comprising 30,000 consumers, 700 reactions occurred during 1-year period [6].

Hazardous chemicals in cosmetics –There are Over 10,000 ingredients which have been used in personal care products [7]. Some of these chemicals are linked and responsible for various kind of cancer, birth defects, developmental and reproductive harm, and other health problems that are on the rise. While the US FDA bans 9 ingredients from cosmetics – the EU has banned over 1,000 due to health concerns. The table below gives a sample of chemical ingredients contained in cosmetics sold in India and their associated health impacts:

SN	Chemicals	Products	Health Impacts
1	Coal Tar Colors	Make-up and hair-dyes	Some FD&C colors are carcinogenic or contain impurities that have been shown to cause cancer when applied to the skin. Allergens and irritants.[8]
2	Diethanolamine (DEA)	Widely used in shampoos	A suspected carcinogen, its compounds and derivatives include triethanolamine (TEA), which can be contaminated with nitrosamines shown to cause cancer in laboratory animals.[9] [Suggestive animal evidence]
3	Formaldehyde and its releasers 1	Eye shadow, mascara, nail polish, shampoo, blushed.	They are Carcinogen, reproductive toxins, probable cause or exacerbate asthma and other respiratory ailments. [Strong animal and human evidence][10]
4	Lead	Hair dyes (e.g. Grecian formula) and in eye makeup (as a preservative)	Lead damages the nervous system, leading to decreased learning ability and behavioral deficits. Reproductive toxin. Carcinogen. [Strong animal, human and children evidence][11]
5	Mercury	Skin-lightening cream and in eye makeup (as a preservative).	Mercury is toxic to development, as well as to the nervous system and is suspected to have harmful effects on the respiratory system, the kidneys and gastrointestinal and reproductive systems. [Strong animal, human and children evidence][12]
6	Parabens	Deodorant, shampoo, cream, baby product, shaving cream, make-up, etc.	Methyl-, ethyl-, propyl-, butyl-, isobutyl- and other parables, have shown hormonal activity. The most common preservatives used in cosmetics. Recently found in tissue samples from human breast tumors. Propylparaben affects sperm production in juvenile rats. [Suggestive animal and human evidence][13]
7	Phenylenediamine (PPD)	Hair dyes (oxidation dyes, amino dyes Para dyes, or peroxide dyes)	PPD is mutagenic and reasonably anticipated to be a human carcinogen. It has been banned in Europe. It is also linked with skin irritations, and respiratory disorders. [Compelling animal evidence][14]
8	Phthalates Most used in cosmetics: DBP, DMP, and DEP.	Fragrance, perfume, deodorant, nail polished, various hair products, cream and lotion, etc.	Liver and kidney lesions: reproductive abnormalities, including testicular atrophy, altered development of reproductive tissues and subtle effects on sperm production (maybe through endocrine disruption); cell line transformations; and cancers, including those of the liver, kidney, and mononuclear cell leukemia. These effects are generally quantitatively though not qualitatively different between phthalates. The developing male reproductive system appears to be the sensitive organs. [Strong animal evidence; suggestive human evidence; some children evidence through exposure via medical devices][15]
9	Denatured alcohol	As a carrier, eyeliner etc	Dryness ,itching[16]
10	Petrolatum	Used in some hair products for shine and as a moisture barrier in some lip balms, lip sticks and moisturizers.	A petroleum product contaminated with polycyclic aromatic hydrocarbons, which may cause cancer [17].

Conclusion

After such a exhaustive literature survey on, cosmetic products, it might not ever been realized that commonly used cosmetics may be associated with such serious health hazards. Cosmetics and personal-care products may contain several chemical ingredients whose safety is unclear or which are known to pose health risks. Testing of cosmetic products is voluntary and controlled by manufacturers. Many of the cosmetics, primarily the hair dyes and shampoos may contain ingredients classified as known or probable human carcinogens. Furthermore, many of them may also contain penetration enhancers increasing penetration through the skin. General consumer should be educated by medical practioners and volunteers about the toxic chemical used in cosmetics to cease the over use of cosmetics. More and more herbal ingredients should be used to get desired effects from cosmetics with no side effects.

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