

STUDY OF NEGATIVE IMPACT OF COSMETICS ON HUMAN HEALTH AND ENVIRONMENT

Smt. Rachana Saxena¹ & Dr. Shruti Awashthi²

1. Asst. Prof. Chemistry P.M. College of Excellence Govt. P.G. Coolege Seoni (M.P.)
2. Asst. Prof. Chemistry P.M. College of Excellence Govt. P.G. Coolege Seoni (M.P.)

ABSTRACT :- The word ‘cosmetics’ is taken from a Greek word “*kosmeticos*” which means to adorn. Since early days materials used for beautification or improvement of appearance comes under the category of cosmetics. The Cosmetics used for beautification or enhancement of appearance are in high demand especially among the women but these products have deep dark side. Various toxic ingredients and hazardous chemicals used in cosmetics are incorporated in beyond acceptable limits. These chemicals may cause serious ill effects on skin and may also enter the skin and other organs causing carcinogenicity. Hence the safety of the cosmetics is an issue of prime concern. It is necessary to make people aware of cosmetic chemicals and their deleterious effects. The present study analyses the current scenario of cosmetic use in India, the behaviour of women consumers in Indian Cosmetic market in terms of age group using cosmetics, reasons for using cosmetics and expenditure on beauty products etc. The harmful chemical ingredients in cosmetics are discussed along with their adverse effects on health. The study is carried out with objective of making women aware of large number of toxic chemicals used in cosmetics and their negative health impacts. It will also draw attention of researchers and clinicians to investigate the likely causes of their negative consequences. Cosmetics have not only seeped into the fashion world but are also playing a prominent role in one’s day-to-day life. Thus, it becomes a necessity to make people aware of the various harmful effects of cosmetics and chemicals used in cosmetics.

KEYWORDS: Negative Impact, Cosmetics and Human Health and Environmnet.

INTRODUCTION:-

Cosmetics were first used 6.000 years ago, and their use has since expanded all across the world. Such items were designed to beautify and perfume the body without

altering the structure or function of the skin. Records show that cosmetics containing lead-rich black pigments (Kohl) were applied to the eye area in ancient time. When lead comes into contact with the skin, it produces gaseous nitric oxide, which can activate the immune system by causing vasodilation and the activation of cytotoxic macrophages.

Cosmetics and skin care products are now widely used across the world, increasing the human body's exposure to the numerous chemical compounds that make up their formulations. It's difficult to quantify the frequency of aesthetic adverse effects since users who experience minor side effects are less likely to seek medical help. The health hazards associated with cosmetics usage are mostly related to exposure to a variety of chemical compounds. Its effects might range from a moderate hypersensitivity reaction to an anaphylactic reaction or even a life-threatening intoxication

Cosmetics (commonly known as makeup) are used for protection, care and beatification of hair, nails, skin, and teeth. Cosmetics hide the flaws, highlight the features and improve body image in people concerned with appearance schemas. The Global cosmetic industry is very rapidly growing and is likely to touch \$463.5 billion by 2027, registering a CAGR of 4.3%. Among the list of more than 12000 synthetic chemicals of cosmetics, less than 20% are considered safe. According to some research, our body can absorb up to 5 kg of hazardous substances annually from cosmetics. A host of chemical ingredients in cosmetics are linked to reproductive disorders, developmental disorders, cancers etc . dermal exposures to chemicals occurs on applying them directly on skin. Heavy metal containing cosmetics used from hands to mouth and around the lips can cause oral exposure. Heavy metals tend to form complexes with carboxylic acid (-COOH), thinly (-SH) and amine

(-NH₂), group of proteins causing cell death that results in various diseases.

The danger to one's appearance as well as the public's health As the usage of cosmetic goods grows, as does the population's exposure to the chemical components for longer periods of time and more often, the adverse effects of these products become more common. Women and men all around the globe use a lot of cosmetic items in the quest for eternal youth, despite the potential health hazards.

Several health monitoring organizations across the world have put limitations on the use of certain cosmetic compounds, which means that any ingredient that isn't on the list is authorized. Since a result, the business is continually employing new substances that are not included on the limitation list, as it is extremely innovative and always trying to enhance its goods. These components might be new allergies. Unlike pharmaceuticals, cosmetics do not have a particular agency to review their safety, no marketing authorization with specified conditions, no risk-benefit analysis, and no assurance of consistency from batch to batch.

The health hazards connected with the use of cosmetic goods have emerged as a public health issue, with around 12% of users in the general population reporting negative effects from one or more cosmetic items in the previous nine years.

Human being is more vulnerable to the pressure from society to use cosmetics to look beautiful and also as a ploy to attract mates. It is very important for women to understand the probable harms of chemical ingredients of cosmetics on women's reproductive aging, reproductive health and overall environmental health. The objective of this paper is to inspect the consumer behaviour of human being cosmetic market in India and is analyzed in terms of factors like reasons for cosmetic use, the age group, money spent on cosmetics, make up brand preferred, working /non-working women and also attempt is made to make women aware of large number of lethal substances used in cosmetics and their adverse health effects. At last relatively new concept of green cosmetics is described to raise awareness of people's towards relatively less toxic and health safe green

cosmetics. The study will also garner the attention of researchers and clinicians to find out probable reasons behind their adverse effects health and environment.

REVIEW OF LITERATURE:-

The use of cosmetic products is expanding globally, and with it, so is the range of chemical substances employed in their production. As a result, there is also a higher risk of intoxication, allergic reactions, prolonged chemical exposure, adverse effects, and indiscriminate use. Most chemicals are included in cosmetic products as preservatives, surfactants, perfumes, stains, etc. These compounds also improve the items' quality, properties, and shelf lives while improving user appeal (Pereira and Pereira, 2018).

Environmental concerns are another issue with cosmetics. The environmental effect of about \$400 billion and the expanding worldwide cosmetics and beauty business ranges from the procurement of raw materials to production, distribution, and trash produced by end-users (Chouhan and Himanshu Vig, 2021). Cosmetics impact the oceans, the air quality, and the ecosystems that have sustained flora and fauna for thousands of years, in addition to the local landfills filled with mountains of single-use plastics (Young, 2022).

Cadmium exposure from cosmetics has been associated with lung damage, kidney dysfunction, and bone disorders. Long-term exposure to cadmium may increase the risk of cancer and disrupt hormonal balance in the body (Ramelli et al., 2012; Genchi et al., 2020; Charkiewicz et al., 2023).

Alex L. Jones et al (2016), Discussed Facial Cosmetics and Attractiveness in which they discussed how Cosmetics are used by women for a number of reasons, including concern over face appearance, social standards, and public self-consciousness, as well as to seem more friendly and aggressive to others. Cosmetics improve social views that the wearer may want to change, with people seeming healthier and earning more, exhibiting higher competence, likeability, and trustworthiness, and appearing more prestigious and dominant. Others' behaviour is influenced by cosmetics, particularly males, who tip more and more frequently to servers wearing cosmetics and are more likely to

approach wearers in the surroundings. The boost in attractiveness that cosmetics bestow on faces, which is now a well-documented impact, is most likely to blame for the influence of cosmetics on social perceptions.

Cosmetic ingredients can enter the environment through various pathways, including but not limited to, direct discharge (Paulsen, 2015; Tsiouli and Fytianos, 2023) from manufacturing facilities (Juliano and Magrini, 2017) into water bodies, runoff (Oluwole et al., 2020).

METHODOLOGY:-

The study is based exclusively on documentary research in databases of scientific articles; survey reports etc. and is interpreted in the light of objectives of the study.

RESULT:-

Cosmetics are items that are applied to the body with the goal of beautifying, cleaning, or improving one's look, as well as accentuating attractive traits. Toothpaste, shampoo, conditioners, mascara, after-shave lotion, style gel, creams, lotions, powders, fragrances, lipsticks, fingernail and toenail paint, eye and facial makeups, hair wavers, hair colours, hair sprays, deodorants, and antiperspirants are all examples of cosmetics. The term "make up" is described as a cosmetic that generally refers to coloured materials that are used to change a person's look. Skin care products or cosmetics, according to one researcher, are combinations of synthetic or natural chemical compounds intended to improve the look or odour of the body. They are items that are meant to be rubbed, poured, sprinkled, sprayed on, or otherwise applied to the human body or any portion of it with the purpose of boosting attractiveness, cleaning, beautifying, or modifying the look without harming the bodily structure or function.

The hazardous chemicals often found in cosmetic formulations may pose a health concern, and recurring adverse effects have been linked to them. Despite the fact that the different structures for the regulation and quality control of cosmetics across the world are fairly complicated and extensive, they should be more stringent in the inclusion of new hazardous chemicals in the formulation of cosmetics to avoid harm to human health. It is important to apply an uniform cosmetovigilance throughout the world to stimulate

improvements in the manufacturing, marketing, and usage of cosmetic goods by the general public. This public health approach is a legitimate way of getting information on the safety of cosmetic goods and their components, avoiding the dangers connected with cosmetic use from becoming a major public health issue.

According to scientific evidence, excessive levels of chemical preservatives, fragrances, and emulsifiers used in the production of cosmetic goods enhance side effects and health hazards via chemical and physical mechanisms. The health risks connected with cosmetic usage might range from a moderate hypersensitivity reaction to anaphylactic shock or even death from intoxication. In spite of clinical data presented in the literature, cancer is a problem linked with the use of cosmetics. Faced with the occurrence of side effects and the imminent occurrence of complications associated with the use of cosmetics, it is concluded that the quality control process in the manufacture of cosmetic products is ineffective in preventing health risks associated with the use of cosmetic products. There is more scope of future research in this field as there are large number of cosmetics products which are untouched from this perspective.

DISCUSSION:-

The use of preservatives, surfactants, perfumes, stains, and other chemicals having preservative activity has risen as a result of today's innovation, research, and creation of new cosmetic goods. Such chemicals improve the quality, properties, and shelf life of cosmetic formulations; yet, frequent, prolonged, and indiscriminate exposure too many of these substances can be detrimental to human health. There are numerous agencies throughout the globe that govern the quality control, safety, and manufacture of cosmetic goods, and they are in charge of changing the standards and recommendations for the population's safe and healthy use of these products while reducing health hazards. However, there is no special institution that controls the cost benefit analysis and assurance of safety in the use of hazardous chemicals in cosmetic goods. Several aspects related to these side effects of cosmetics have been discussed in this paper

CONCLUSION:-

Cosmetic items have a big impact on the environment and human health. Because some items contain chemical substances, there is a chance that they will cause health problems like allergies, sensitivities, and skin irritation. Certain ingredients in cosmetics, such as phthalates and parabens, have been connected to hormone disruption, which may affect the development and health of the reproductive system. Furthermore, several chemicals, including coal tar compounds and formaldehyde, have been identified as carcinogenic, which raises questions about potential long-term health effects, such as an elevated risk of cancer. Regarding the environment, throughout their existence, cosmetic products have contributed to several types of pollution.

The manufacturing process has the potential to emit contaminants into the air and water during production, which could worsen the local community's public health issues and cause environmental damage. In addition, the discarding of cosmetics especially those that include microplastics may contaminate ecosystems and waterways. Because microplastics can be consumed and cause harm at different stages of the food chain, the buildup of tiny particles in the environment is a concern to marine life and wildlife. Furthermore, the production, packing, and shipping of cosmetics all have a carbon footprint that contributes to climate change and exacerbates environmental problems worldwide. All things considered, tackling the effects of cosmetics on the environment and human health requires extensive initiatives meant to advance safer ingredients, environmentally friendly manufacturing processes, and conscientious consumer behavior.

REFERENCES:-

1. A. L. Jones and R. S. S. Kramer (2016), "Facial cosmetics and attractiveness: Comparing the effect sizes of professionally-applied cosmetics and identity," *PLoS One*, vol. 11, no. 10, pp. 1–17, 2016, doi: 10.1371/journal.pone.0164218.
2. Chouhan, N., and Himanshu Vig, R. D. (2021). Cosmetics market by category (skin and sun care products, hair care products, deodorants & fragrances, and makeup & color cosmetics), gender (men, women, and unisex), and distribution channel hypermarkets/supermarkets, specialty stores, pharmacies, onli', Allied Mark. Res. Available at: <https://www.alliedmarketresearch.com/cosmetics-market>.
3. D. Vasiljević and L. Bojović, "Organic and natural cosmetic products-how safe are they?," *Arh. Farm. (Belgr.)*, 2018, doi:10.5937/ArhFarm1805990V.
4. E. A. Winter, T. M. Litvinova, D. V. Babaskin, L. I. Babaskina, and O. V. Krylova (2018), "Consumer preferences in cosmetic products within the market's drugstore segment," *J. Pharm. Sci. Res.*, 2018.
5. Genchi, G., Sinicropi, M. S., Lauria, G., Carocci, A., and Catalano, A. (2020). The effects of cadmium toxicity. *Int. J. Environ. Res. Public Health* 17 (11), 3782–3824. doi:10.3390/ijerph17113782
- Charkiewicz, A. E., Omeljaniuk, W. J., Nowak, K., Garley, M., and Nikliński, J. (2023). Cadmium toxicity and health effects—a brief summary. *Molecules* 28 (18), 6620–6716. doi:10.3390/molecules28186620
6. J. X. Pereira and T. C. Pereira (2018), "Cosmetics and its Health Risks," *Glob. J. Med. Res.*, vol. 18, no. 2, pp. 63–70, 2018, doi: 10.34257/gjmrbovol18is2pg63.
7. Juliano, C., and Magrini, G. A. (2017). Cosmetic ingredients as emerging pollutants of environmental and health concern. A mini-review. *A Mini-Review* 4, 11. doi:10.3390/cosmetics4020011
8. L. Ben-noun, "Medical Research in the Ancient and the Biblical Times," no. August, 2016.
9. L. S. (2015), "Herbal Cosmetics and Cosmeceuticals: An Overview," *Nat. Prod. Chem. Res.*, 2015, doi: 10.4172/2329-6836.1000170.
10. M. F. R. G. Dias (2015), "Hair cosmetics: An overview," *International Journal of Trichology*. 2015, doi: 10.4103/0974-7753.153450.
11. Oluwole, A. O., Omotola, E. O., and Olatunji, O. S. (2020). Pharmaceuticals and personal care products in water and wastewater: a review of treatment processes and use of photocatalyst immobilized on functionalized carbon in AOP degradation. *BMC Chem.* 14 (1), 62–29. doi:10.1186/s13065-020-00714-1
12. P. Tejal, D. Nishad, J. Amisha, G. Umesh, K. T. Desai, and R. K. Bansal (2013), "Cosmetics and health: Usage, perceptions and awareness,"

- Bangladesh J. Med. Sci.*, 2013, doi: 10.3329/bjms.v12i4.13330.
13. Paulsen, L. (2015). The health risks of chemicals in personal care products and their fate in the environment. Chem. Honors Pap. 15. Available at: <https://digitalcommons.conncoll.edu/chemhp/15>.
14. Pereira, J. X., and Pereira, T. C. (2018). Cosmetics and its health risks. *Glob. J. Med. Res.* 18 (2), 63–70. doi:10.34257/gjmr/vol18is2pg63
15. Ramelli, G. P., Taddeo, I., Herrmann, U., and Weber, P. (2012). V13 Poster location 013 Paroxysmal tonic upgaze of infancy: 5 additional cases. *Eur. J. Paediatr. Neurology* 13 (September), S10. doi:10.1016/s1090-3798(09)70033-9
16. S. Shahid, F. Ahmed, and U. Hasan (2018), “A qualitative investigation into consumption of halal cosmetic products: the evidence from India,” *J. Islam. Mark.*, 2018, doi: 10.1108/JIMA-01-2017-0009.
17. Tsiouli, S., and Fytianos, G. (2023). “Water pollution by personal care products,” in *Personal Care Prod. Hum. Health*, 115–137. doi:10.1016/B978-0-323-99684-6.00002-1
18. Young, O. (2022). ‘The environmental impact of cosmetics is tremendous—here’s how they’re harmful. Available at: <https://www.treehugger.com/environmental-impactof-cosmetics-5207672#toc> chemical ingredients’.