

HARMFUL IMPACT OF 'HOLIFESTIVAL THROUGH SPREADING BY HUES 'ON NATURE AND LIVING ANIMALS. A LOGICAL INVESTIGATION OF COMMERCIALY ACCESSIBLE HUES IN BENGALURU, KARNATAKA, INDIA

***PROF.SRIPATHY.L.**

**Associate Professor, Department of chemistry, Vivekananda Degree College. Rajajinagar II stage, Bengaluru-560055*

ABSTRACT

The celebration of 'Holi' is turned out to be an ecological hazard because of the dangerous hues utilized amid the festivals. Boundless and uncontrolled utilization of such colours can prompt grave outcomes as far as human wellbeing and natural adjust. These hues are exceedingly organized polymers and are extremely hard to decay organically. This examination was taken up with an activity to decide the degree of impacts that the 'Holi' hues have on the environment. In these days we are using artificial colours instead of natural Holi colors, which is harmful to human skin and other parts of the body. In this study, we were focused investigate the presence of heavy metals in dry colors and physico-chemical property of dry colors .The alarming results of heavy metals were found after analyzing the dry colors.

INTRODUCTION

Holi “the festival of colors”, which is very popular in India. To welcome the arrival of spring, Holi, the festival of colors, is celebrated in India by smearing colored powder or spraying colored water on each other¹. It is celebrated in different places in India with different names; this is a social-cultural festival and involves a large number of people involving it. Holi symbolizes the win of “good” over “bad”. A large amount of dry colors is used in traditional Holi playing and under the present scenario almost 99% of the colors used are synthetic. The dry colors available in the market are generally of non-standard specification/and parameters and hence their quality is not satisfactory for direct skin application². In earlier times, Gulal powders were set up from blossoms originating from trees, for example, the Indian Coral Tree and the Flame of the Forest that had therapeutic properties, gainful to the skin. After the coming of engineered colors amidst nineteenth century, the vanishing of

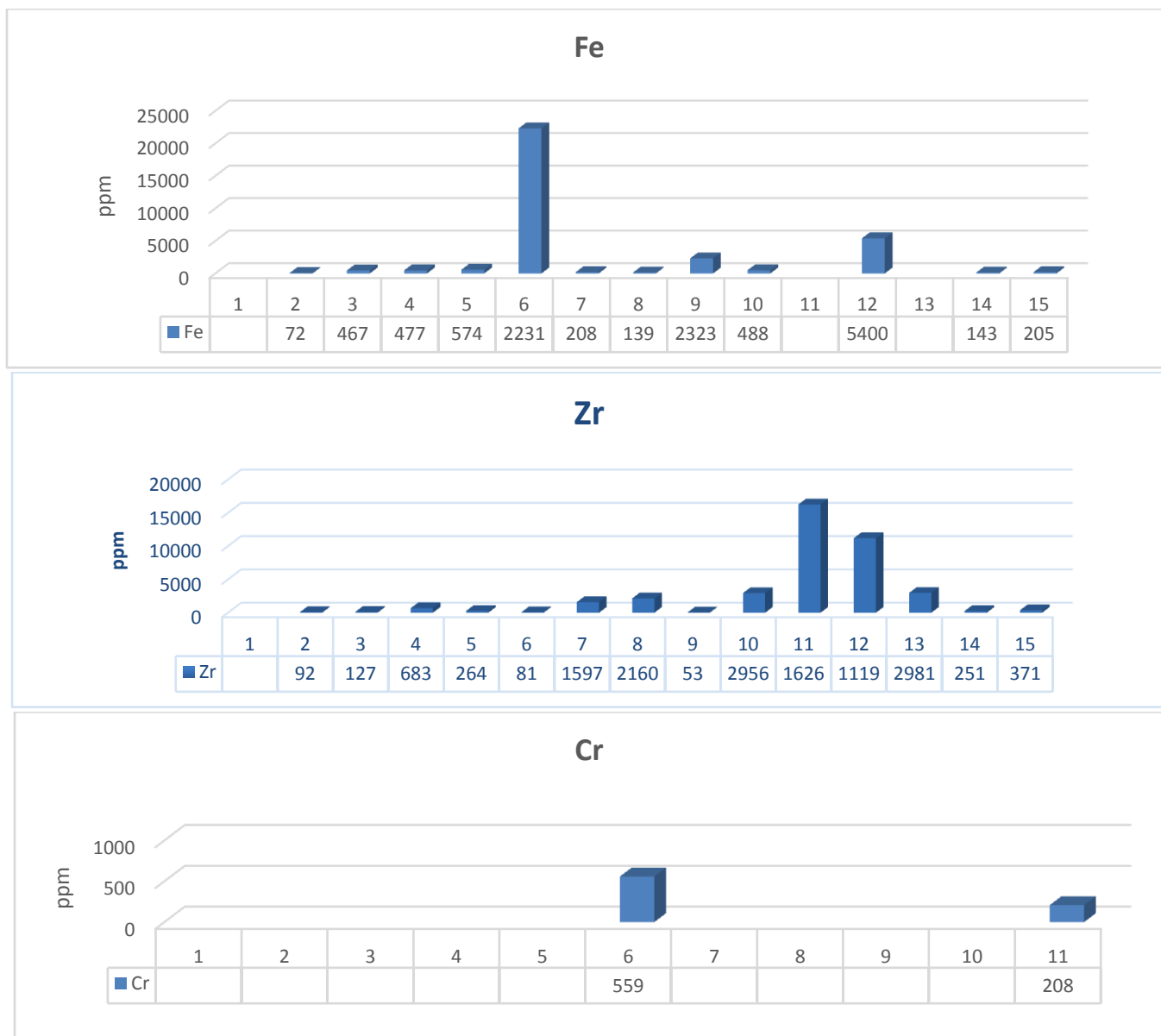
trees in urban zones and the quest for higher benefits prompted the surrender of normal colours³. The new modern colors have been fabricated through concoction forms with non-standard parameters and thus the subsequent hues are some of the time harmful for face and skin, causing issues, for example, eye aggravation, hypersensitivities, skin disease and asthma⁴. Unsafe items have frequently been sold out and about by little brokers, in boxes with marks, saying "for mechanical utilize as it were".

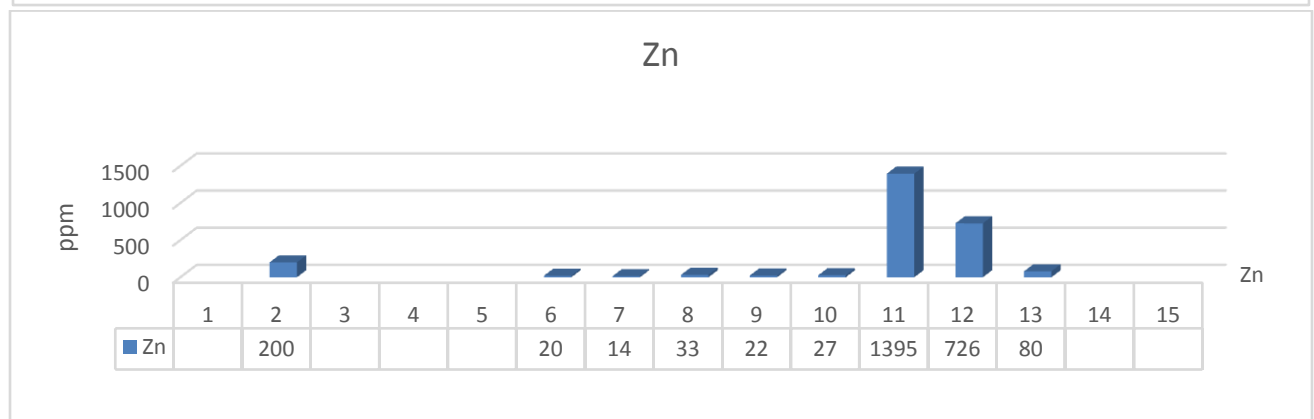
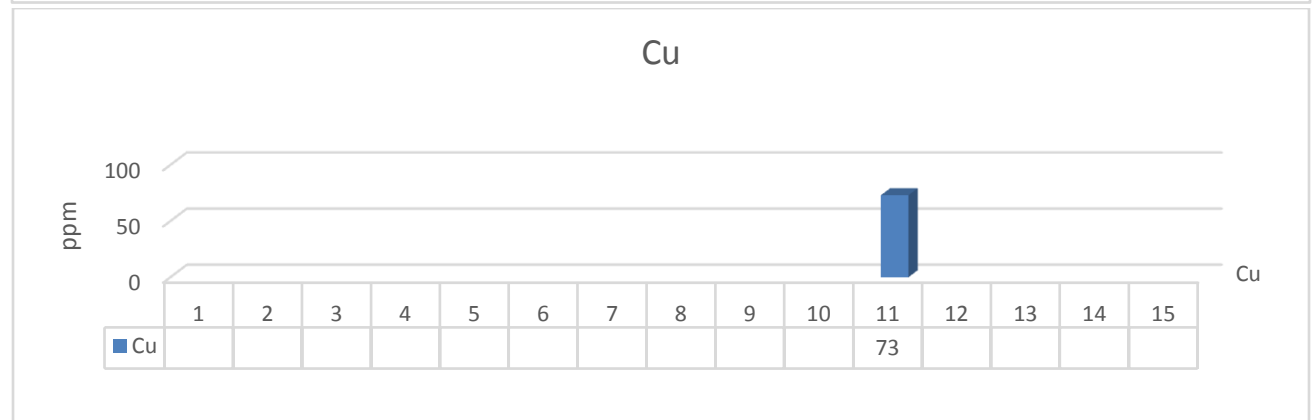
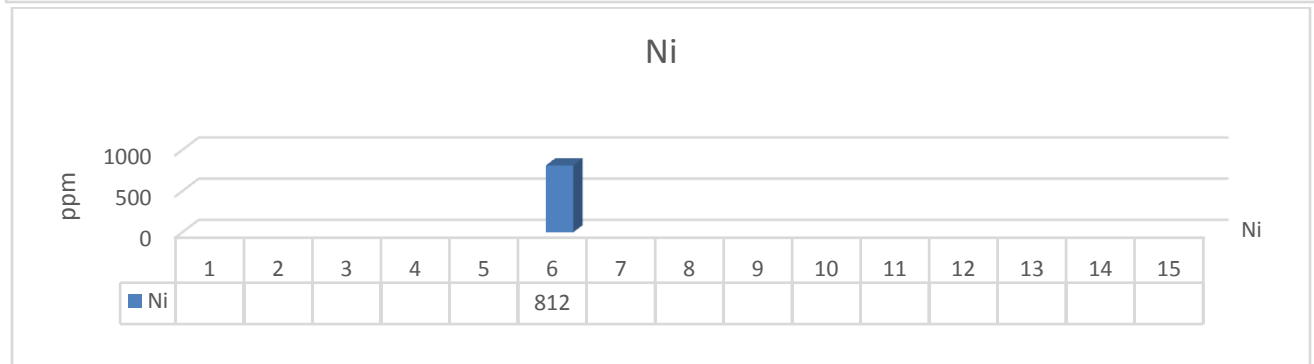
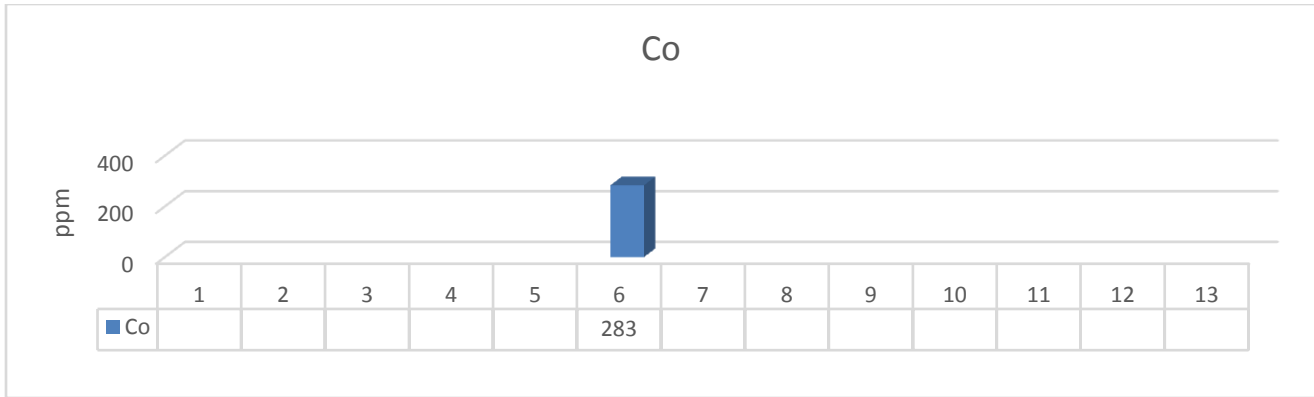
Gulal powder has dependably had an imperative part in Hindu culture and has dependably been utilized for religious purposes. Other than Holi celebration, the utilization of shaded powders shows up in different functions, for example, funerals. In this situation, in a few populaces, a specific custom happens when they perished is a hitched man. The dowager puts on every one of the decorations she has and withdraws of her significant other embellishing him with every one of her gems. Holding a little metal plate with shaded powders, she lets the men taking an interest in the function painting the substance of the expert. This custom is related to the one of the marriage, in which the spouse and the lady of the hour, bless themselves with shaded powders for four days before the wedding. This balm, to be sure, intends to set up their bodies for matrimonial life⁵. Beyond the religious circle, the utilization of Gulal powder is spread for various employments. Following this festival, a critical number of individuals experience dermatological complaints⁶ and visual problems⁷. Most Holi hues sold in the showcase contain lethal synthetics with conceivably serious wellbeing impacts⁴. Different visual unfavorable impacts of these hues have been accounted for, including conjunctivitis and corneal abrasion^{8,9}. These hues likewise cause impermanent, visual deficiency, renal disappointment, skin disease and present huge wellbeing risk¹⁰. Studies have affirmed analysis of gaining methanoglobinemia created in numerous cases in youngsters in the wake of playing with Holi colours⁸. Methanoglobinemia can be perilous, yet can be survived if treated on time with intravenous methylene blue⁹. Open mindfulness and administrative activities are expected to stay away from such conditions. Absence of control over the quality and substance of the Holi hues is an issue, as they are as often as possible sold by merchants who don't have the foggiest idea about their beginning. Most purchasers don't know about the Bundle Product Act (PPA) that requests the substance, cost and address of the producer to be specified in the bundle containing these hues. On the off chance that the client has any grumblings, there is barely a possibility for him getting redressal in any gathering. The Prevention of Food defilement Act (PFA) covers just eatable foodstuff, however, offers no security to clients who endure on account of corrupted Holi colours¹¹⁻¹³.

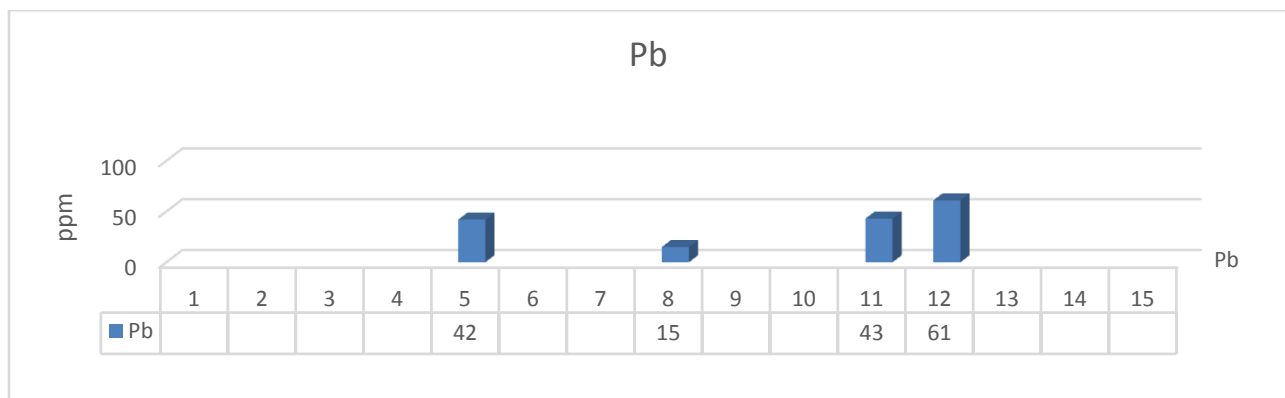
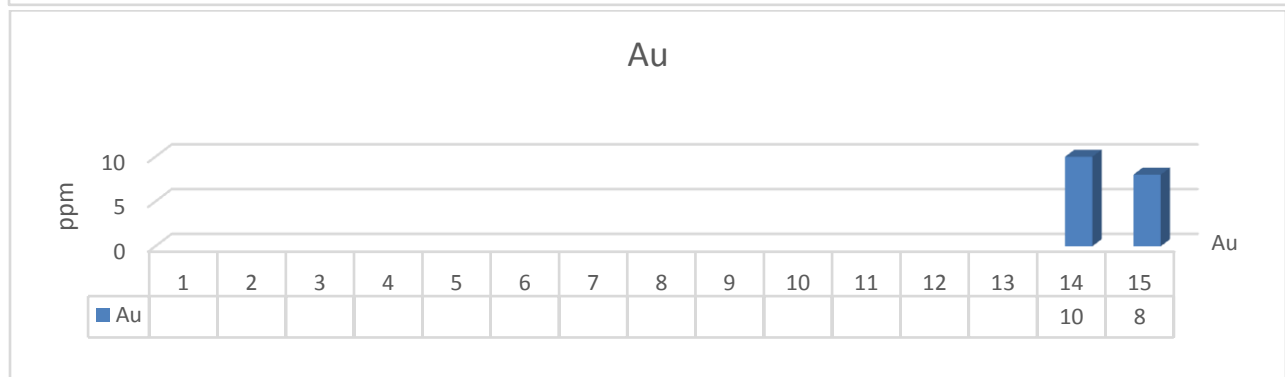
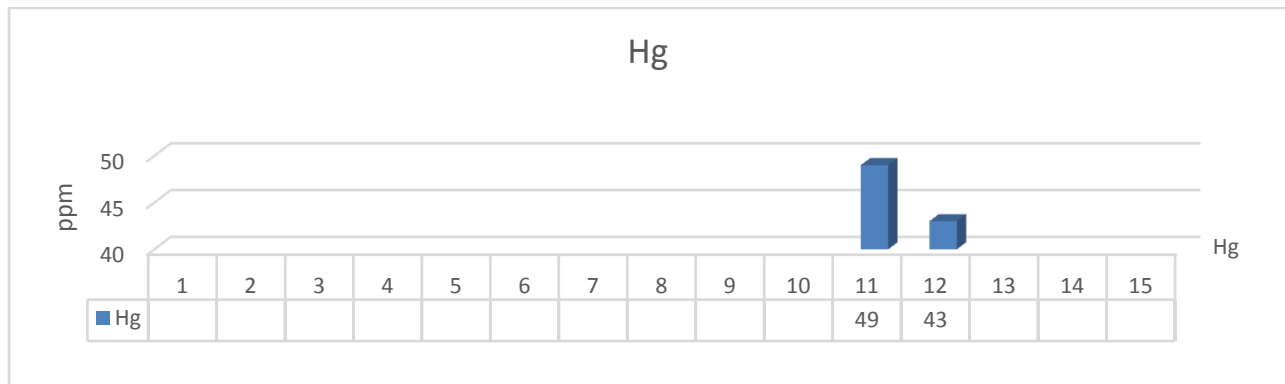
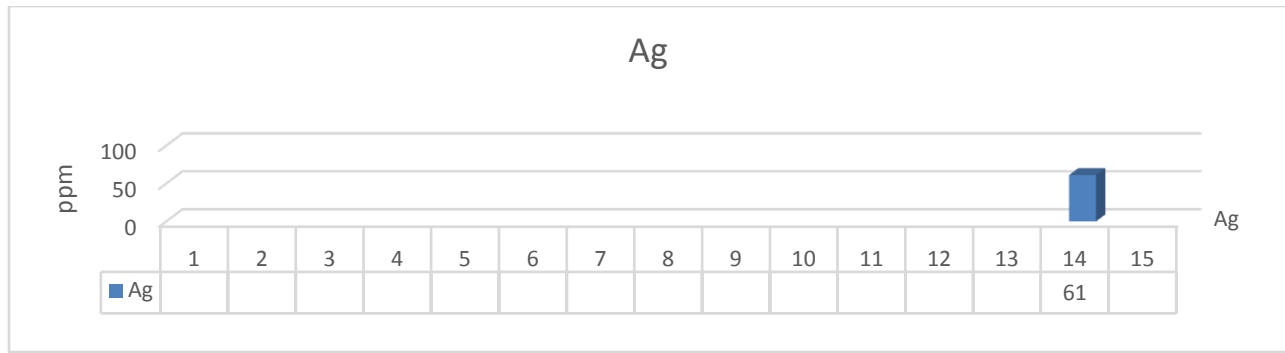
MATERIALS AND METHODS

The Holi color samples were collected from different parts of Karnataka state. About 12 different color samples were collected and analyzed for heavy metals using x-ray fluorescence (XRF α -400) and standard pH meter for physico-chemical properties.

RESULTS AND DISCUSSION







HEALTH EFFECTS OF HOLI COLORS DUE TO PRESCENCE OF FOLLOWING HEAVY METALS:-

The colorants in gulal contain heavy metals and are known as systemic toxins as they are not only deposited in the kidney, liver and bones, but are also capable of disrupting the metabolic functions¹⁴. Among all the colours tested, it was concluded that out of 15 samples from different places one sample (pink colour) contains 812ppm of Ni, two samples contains 43 and 49ppm respectively, one sample contain 283ppm, more than ten samples contain Iron 72 to 22316ppm, two samples contain Cr as 208 and 559ppm, fourteen samples contain Zr ranging from 53 to 16265ppm, one sample Cu as 73ppm, one sample also contain Ag as 61ppm, two samples contains Au as 8 and 10ppm and two samples contains Hg Mercury the concentrations was 43 and 49ppm and four samples contains Pb Lead concentration was 15, 42, 43 and 61 ppm which more concerned.

NICKEL: - This Study reveals that pink color contains 812ppm of nickel. Nickel can cause allergy, skin rash. Nickel can cause chronic bronchitis, reduced lung function and cancer of the lung and nasal sinus; have occurred in people who have breathed dust containing nickel compounds.

MERCURY:-Two colour samples found to contain the dangerous metal mercury. Poisoning (also known as hydrargymia or mercurialism) is a type of metal poisoning and a medical condition caused by exposure or its compound. Toxic effects include damage to the brain, kidneys and lungs. Mercury poisoning can result in several diseases including acrodymia (pink disease), Hunter-Russel syndrome, and Minamata disease³. Symptoms typically include sensory impairment (vision, hearing, and speech), disturbed sensation and a lack of coordination.

COBALT:-This study reveals that 283ppm of cobalt. Cobalt can cause skin allergy. If allergy develops, very low future exposure can cause itching and a skin rash⁵. Cobalt may cause asthma-like allergy. Cobalt may affect the heart, thyroid, liver and kidneys. Exposure to cobalt dust can irritate skin, eyes, nose and throat.

LEAD:-One of the dangerous heavy metal very commonly known is lead. 4 out of 15 color samples contain lead. Lead affects human of all ages, but the effects of lead are considered most serious in young children. Lead is harmful by inhalation and if swallowed. It causes renal failure^{2,4} and skin irritation. Children absorb lead from many sources, including air, drinking water, food, household dust play area soil and dust, interior and exterior paints, and improperly glazed ceramics and toys.

IRON:-this study reveals that 10 out of 12 samples contain iron. Though iron is essential, its more presence can be harmful. Skin becomes sensitive to light³.

CONCLUSION

The present study is an approach to create consciousness and awareness on the impact of heavy metals in holi colours. It could provide evidence to identify and quantify the presence of high concentration and also define trace amounts of metal contaminants in both gulal and water-based.

Holi colours. The dry holi colours are prepared by synthetic methods, their direct application on skin and face can be dangerous. This study reveals presence of heavy metals in a alarming range. I trust that vast scale endeavors to expand open mindfulness with respect to the wellbeing risks of unsafe hues, broad accessibility of more secure choices at moderate costs and administrative control on the creation and offering of dangerous synthetic substances will go far in a more secure and condition cognizant festival of this energetic celebration. To keep up the bright exhilaration and intensity of Holi, an eco-accommodating methodology with natural Holi hues from vegetable-based colors ought to be empowered.

ACKNOWLEDGEMENTS:-

I acknowledge, My gratitude gratefully to **Management, Principal and Students** of Vivekananda Degree College, who supported us to take up the analysis, I thank **Dr Thuppil Venkatesh**, Principal Advisor, Quality Council of India (QCI), Director NRCLPI, St John's Medical College, for his support.

REFERENCES

1. Mauskar, M., Karande, S. and Kulkarni, M., J. Trop. "Acquired Methemoglobinemia – A Sporadic Holi Disaster" *Pediatr.*, 2009, 55(2), 139–140.
2. V.P.Kapoor and P.Pushpangadan, *Natural Product Radiance*, March-April 2002.
3. Bewear of Holi Colorus, Iqbal Malik, Vatavaran. Down to earth.
4. Ameer K. Patel, Hardik H. Chaudhary, Khushbu S. Patel and Prof. Dr. Dhruvo Jyoti Sen, "Colour of EcoFriendly Dyes Used In Holi Rather Than Triphenyl Methane Dyes", *WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL SCIENCES*. Volume 3, Issue 9, 1287-1305.
5. Ghosh, S. K., Bandopadhyay, D., Chatterjee, G. and Saha, D., *Indian J. Dermatol.*, 2009, 54(3), 240–242.
6. Dada, T., Sharma, N. and Kumar, A., *Natl. Med. J. India*, 1997, 10(5), 256.
7. Chauhan, D., Arora, R., Das, S., Shroff, D. and Narula, R., *Indian J. Ophthalmol.*, 2007, 55(5), 373–374.
8. Velpandian, T., Saha, K., Ravi, A. K., Kumari, S. S., Biswas, N. R. and Ghose, S. J., *Hazard. J. Mater.*, 2007, 139(2), 204–208.

9. <http://www.specialchem4cosmetics.com/services/editorials.aspx>
10. Singh, J., Gathwala, G., Khanna, A., Abrol, P., Mittal, K. and Gehlawat, V. K., *Indian J. Pediatr.*, 2013, 80(4), 351–352.
11. Zaki, S. A., Jadhav, A. and Chandane, P., *Ann. Trop. Paediatr.*, 2009, 29(3), 221–223.
12. McRobb, C. M. and Holt, D. W., *J. Extra-Corpor. Technol.*, 2008, 40(3), 206–214.
13. <http://www.thehindu.com/2004/03/07/stories/2004030709750300.htm>
14. www.satavic.org/chemicalHoli.htm

