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Yalavarthy Prameela Devi

Kakatiya University, India

Toxic chemicals in personal care products and their hazards with special reference to Triclosan

Personal care products refer to a wide variety of items that are found in the health and beauty sections of drug and departmental stores. Some of these products are cosmetics which includes skin moisturizers, perfumes, lipsticks, fingernail polishes, eye and facial makeup preparations, shampoos, hair colors, toothpastes and deodorants and also covers some drugs like skin protectants (lip balms and diaper ointments), mouthwashes marketed with therapeutic claims, antiperspirants and treatments for dandruff or acne. Most personal care products on the market contain toxic chemicals like triclosan, parabens, phthalates, synthetic colors, fragrance, sodium lauryl sulfate (SLS), formaldehyde and toluene. These chemicals linked to hormonal imbalance, reproductive health problems and even cancer. Many of these chemicals in personal care products have never been tested for safety and may also accumulate and interact in potentially harmful ways. The load adds up quickly day after day as we swallow, breathe in and lather up and these toxins enter into our bodies and may have lasting impact. Many people may not realize that ingredients in cosmetics and personal care products can enter into the environment and harm the environment and may have adverse effects on plants animals and humans. Sorption and photolytic degradation mitigate the availability of these chemicals to aquatic biota and the byproducts of such chemicals may be more resistant to degradation and have higher toxicity than the parent compound. We have studied the toxic effects of Triclosan, a high production volume ingredient used as a bactericide in personal care products such as toothpaste and deodorant, on bacteria, zooplankton and an aquatic fish, *Channa punctatus*, which is a very common edible fish in south India. We have selected these organisms as these are important in the ecosystem function and any possible damage to these organisms will have an adverse effect in maintaining the balance of the ecosystem. Acute toxicity evaluation of fish on LC_{50}, behavioral changes, biochemical and molecular alterations, histopathological changes were studied. Effects of triclosan on bacterial activity and on zooplankton were also evaluated. The result indicate that triclosan exerts a marked influence on the parameters tested which indicate that if triclosan is discharged into the environment at high levels, the possible destruction of the balance of the ecosystem is expected.

Biography

Yalavarthy Prameela Devi has obtained her MSc in Zoology with Environmental Biology specialization and PhD in Environmental Biology from S V University, India in 1984. She is presently working as the Dean, Faculty of Sciences at Kakatiya University, India. She has 33 years of teaching and 37 years of research experience and has good knowledge in Environmental Biotechnology and Environmental Bioanalytical Techniques. She is an Endeavour Fellow of Australia 2010. She has published nearly 110 scientific research papers and presented over 100 talks at various national and international seminars, workshops, training programs and conferences. She has received UGC Research Award, India in 2006. Her research interests include the development of low cost field kits for environmental monitoring of toxic chemicals using biological principles, environmental toxicology, ecological restoration and environmental management and global climate change. She is an Honorary Adviser to many environmental consultancy service companies in India.

prameeladeviy@yahoo.co.in

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