World Congress on
Advanced Materials and Nanotechnology
October 29, 2021 | Webinar

Dr. Shivani R Padnya
Parul University, India

Histidine Functionalised Magnetic Nanoparticles: A Bird's eye view

Recently, Nanotechnology took an attention due to various applications in broad area of science and technology. However, the use of different nano particles for fingerprint enhancement gives very rapid, notable and promising result. Among all, Magnetic Nanoparticles (MNPs) receiving increased attention in physical, biological, material and forensic sciences due to their multifunctional properties such as small size, super magnetism and biocompatibility. His@MNPs could be synthesised using in situ wet chemical method and characterized using XRD, FTIR, HR- TEM & SEM. Further, His@MNPs were studied for their potential use for biomedical appilcations by observing molecular interactions with DNA, Microbes and A549 Human Lung cancer cell line. In addition to this, His@MNP is also studied for in vitro drug kinetics study in 10% PD at physiological conditions. Due to imidazole group on the surface of His@MNPs, gives rapid and peculiar fingerprint enhancement. Additionally, synthesised nanomaterial is efficient on most of the surfaces, like hard-surfaces, soft-surfaces, porous and non-porous surfaces. However, His@MNPs have affinity to bind negatively charged component which gives enchantment to latent fingerprint. The interaction between positively charged amine and negatively charged fingerprint surface developed print which can be seen by naked eye as well as in the range of UV radiation around 350- 390 nm. This work may open up other potential application of HiS@MNPs in preventive and detective forensics.

Biography

She has a Ph.D. in Nanomedicine from the School of Nanosciences, Central University of Gujarat. Her academic journey includes M.Phil. in Nanomedicine, Diploma in Astrobiology from IndianAstrobiology Research Centre (IARC), master's in forensic science and bachelor's in microbiology.She has 14 publications in international science and research journals, 3 proceedings and 1 bookchapter. She is the recipient of the International Young Scientist Award at 4th International Young Scientist Congress-2018, Prof. H.R. Pandya Academic Performance award-2019 by Parul University, Best Women Faculty Award-2020 at 2nd Virtual International Conference on Forenscience and criminal Investigation (ICFSCI-2020), Research Excellent Award-2020 by Institute ofScholars and Best Research Paper Presentation Award-2021 at international Conference "ForensicGyan-2021". She has organized various workshops, conferences, and Faculty developmentprogrammes as a convenor.

shivpan02@gmail.com