

Pretreatment with Chemical agents: A potential step in handling and management of COVID-19 infectious waste

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Abstract:

The COVID-19 pandemic crisis has bestowed prima challenge for the collection services, handling and disposal of infectious waste. There is also a large increase in the amount of single use plastics including masks, gloves, gowns and other protective equipment being produced by hospitals and individuals than usual. If not soundly management, this infected waste may lead to huge dumping, giving rise to public health risks. Therefore, individual require counselling on safely disposal of the used medical equipment also there is need of more robust systems for waste segregation, collection and management. All the medical and infectious waste should be treated non- recyclable to prevent human contact with infectious agents. The waste should be disposed in colour waste should be color coded bins/ plastic bags or other colour coded containers with “swan neck” tied with proper labeling and date. As per NACO guidelines infectious needle should be pretreated with 1% Sodium hypochlorite solution for at least 30 minutes for controlling the spread of HIV. Similarly, the COVID infected waste should be pretreated with virucide such as Formaldehyde, hydrogen peroxide, Potassium permanganate, Sodium hypochlorite solution etc for a specified time and sealed properly to prevent chances of infection. As the COVID-19 virus is composed of structural and non-structural proteins and RNA, pre-treatment with formaldehyde causes intermolecular cross-linking and disruption of cytoplasm enzymes by reacting with amino groups of proteins. Similarly, KMnO₄ reduces the bacterial and viral bioload by its oxidizing potential and Hydrogen peroxide provide virucidal effect by causing the breakage in RNA strands and ribosomes. Therefore, to prevent human infection all municipal waste should be pretreated with sanitizers and then disposed of through incineration or sanitary landfill.

50 students and 10 PhD scholars for their research dissertations. Dr. Diwan has authored six books and published over 100 research, review and posters in various national and international journals. Her primary areas of research include Novel Drug Delivery Systems, Pharmacokinetics, Nanotechnology, Industrial Pharmacy, Quality Assurance, Bioavailability Enhancement and Modified Transdermal Formulations.

Speaker's Recent Publications:

1. “Synthesis of novel N-substituted phenyl-6-oxo-3-phenylpyridazine derivatives as cyclooxygenase-2 inhibitors”; Drug Development Research/ 2020/ 1–12.
2. “Discovery of Novel Pyridazine-Based Cyclooxygenase-2 Inhibitors with a Promising Gastric Safety Profile”; Molecules/ 2020/ 25/2002.
- 3 “An Insight into the Current Perspective and Potential Drug Targets for Visceral Leishmaniasis”; Current Drug Targets/2020.
4. “Synthesis of some pyridoxine derivatives as antioxidants and antimicrobial agents”; Tropical Journal of Pharmaceutical Research/ 2019/ 18(12)/ 2633-2641.
5. “Docking predictions based Plasmodium falciparum phosphoethanolamine methyl transferase inhibitor identification and in-vitro ant malarial activity analysis”; BMC Chemistry/ 2019/13:43.

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Biography: Dr. Anupama Diwan is presently working as a Professor and Dean at the School of Pharmaceutical Sciences, Apeejay Styra University. She has research and teaching experience of over 24 years. She has supervised over