OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Biotechnology

September 13-15, 2012 Hyderabad International Convention Centre, Hyderabad, India

Biodegradation and biofiltration studies for removal of volatile organic compounds (VOCs)

Smita Raghuvanshi
Department of Chemical Engineering, Birla Institute of Technology and Science, India

The effect of increased industrialization has adverse impact on the environment thus leading to air pollution and water pollution. The major impact of industrial systems on the environment is the emissions of gaseous, liquid and particulate materials in the atmosphere which leads to air pollution. Air pollution is aggravated now-a-days because of economic development of societies across the world. The category of air emissions include the criteria pollutants given by the Environmental Protection Agency (EPA), USA which include sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3), suspended particulate matter (SPM) and lead (Pb) which are significant contributors in the deterioration of public health (USEPA, 1993). Another important category of pollutants is hazardous pollutants such as Volatile Organic Compounds (VOCs), ammonia (NH_3), hydrogen sulfide (H_2S), etc. which are responsible for major air and water pollution. Out of all listed hazardous pollutants, VOCs are the large group of organic compounds emitted into the atmosphere by a wide range of industries. In fact, VOCs are one of the major pollutants released by the industries which contaminate the atmospheric air and the fresh water resources. This technique is widely used for the removal of VOCs from and air and metal ions from water. The potential of microorganisms in consuming the VOCs as carbon source makes biodegradation and biofiltration an attractive option for the removal of pollutants from the waste air and waste water streams. The work essentially discusses the biodegradation and biofiltration studies using the mixed culture. The work also discusses the essential factors for the development of the laboratory scale biofilter column and the packing material used in the biofiltration studies. The work also details in the various parameters such as effect of time, effect of flow rate, effect of shock loads and effect of bed height to check the performance of biofiltration. The work also incorporates the various applications of biofilters.

Biography

Smita Raghuvanshi at present is working as an Assistant Professor in Department of Chemical Engineering at Birla Institute of Technology and Science (BITS), Pilani, India. She has completed Ph.D. in the year of 2010. She has several publications to her credit. She is also guiding two PhD students at present. She is Life Associate member of Indian Institute of Chemical Engineers. She is also having DST-fast track project in the field of biofiltration for removal of chlorinated VOCs. She has recently been awarded an UGC major project in the area of biofiltration for removal of metal ions.

smitaraghuvanshi@gmail.com