

A Review on the Mechanism Removal of Pesticides and Heavy Metal from Agricultural Runoff in Treatment Train

Authors : N. A. Ahmad Zubairi, H. Takaijudin, K. W. Yusof

Abstract : Pesticides have been used widely over the world in agriculture to protect from pests and reduce crop losses. However, it affects the environment with toxic chemicals. Exceed of toxic constituents in the ecosystem will result in bad side effects. The hydrological cycle is related to the existence of pesticides and heavy metal which it can penetrate through varieties of sources into the soil or water bodies, especially runoff. Therefore, proper mechanisms of pesticide and heavy metal removal should be studied to improve the quality of ecosystem free or reduce from unwanted substances. This paper reviews the use of treatment train and its mechanisms to minimize pesticides and heavy metal from agricultural runoff. Organochlorine (OCL) is a common pesticide that was found in the agricultural runoff. OCL is one of the toxic chemicals that can disturb the ecosystem such as inhibiting plants's growth and harm human health by having symptoms as asthma, active cancer cell, vomit, diarrhea, etc. Thus, this unwanted contaminant gives disadvantages to the environment and needs treatment system. Hence, treatment train by bioretention system is suitable because removal efficiency achieves until 90% of pesticide removal with selected vegetated plant and additive.

Keywords : pesticides, heavy metal, agricultural runoff, bioretention, mechanism removal, treatment train

Conference Title : ICEPA 2020 : International Conference on Environmental Pollution and Agriculture

Conference Location : Kuala Lumpur, Malaysia

Conference Dates : December 17-18, 2020