

Title (5)	:	The Effect of UV Light Exposure Distance on the Removal of 3-Monochloropropane,1,2-Diol (3-MCPD) Using Photocatalytic Reactor
Journal	:	AIP Conference Proceedings, Volume 2703, 9 June 2023
Document Type	:	Conference Paper
Publisher	:	AIP Publishing
UniKL Author	:	Mohamad Zarith Amzar Mohamed Kamil; Puteri Nurain Syahirah Megat Muhammad Kamal; Muhammad Izzuddin Mokhtar; Aliff Radzuan Mohamad Razi; Nor Shahirah Mohd Nasir; Amin Safwan Alikasturi
Link to Full Text	:	https://pubs.aip.org/aip/acp/article-abstract/2703/1/050006/2895544/The-effect-of-UV-light-exposure-distance-on-the?redirectedFrom=fulltext
Link to Scopus Preview	:	https://www.scopus.com/inward/record.uri?eid=2-s2.0-85163873991&doi=10.1063%2f5.0115908&partnerID=40&md5=6b696886af17bcb70ee3dc0b68249ddf
Abstract	:	<p>The growing demands for vegetable oil have indirectly affected human health with the trace of 3-monochloropropane-1,2-diol (3-MCPD) found in the oil. This is probably due to 3-MCPD can be considered carcinogens to humans. Herein, this research study focused on investigating the effect of distance of Ultraviolet type C (UVC) lamp to the reactor, stirring speed, and initial concentration of 3-MCPD. The samples were analyzed using UV-Visible (UV-Vis) Spectrophotometer and Fourier Transform Infrared Spectroscopy (FTIR) to determine the concentration and the functional group of 3-MCPD, respectively during the process. From this research study, up to 80.7% degradation of 3-MCPD was achieved under these conditions; 10 cm distance of UVC lamp (60 W) to 3-MCPD, without stirring the medium at temperature of 60 °C for 2 hrs. Besides that, the removal rate of 3-MCPD was at its highest (426.7 ppm/hr) when 5000 ppm of 3-MCPD was employed in the process. Therefore, it can be highlighted that the photocatalytic reactor used in this research study provides sufficient energy to break the bond between carbon and chloride ions in the 3-MCPD contaminant.</p>