Risk assessment of upper respiratory health problems among workers exposed to biogas residues at palm oil plants in Sabah Malaysia

ABSTRACT

Objective: A cross-sectional study was carried out on the respiratory effects of biogas plant environment exposure in palm oil mills. The aim of this study was to determine whether respiratory health effects were more common among workers in biogas plant environment. Methods: Workers from 19 palm oil mills in Sabah with biogas plants were compared between the exposed and unexposed of the biogas plant environment. The workers were assessed with a questionnaire, physical examination, spirometry and oximetry tests. Then, the data obtained were analysed using the Statistical Package for the Social Sciences (SPSS) version 22. Result: Pearson Chi-square analysis ($p = 0.019$, $x2 = 5.51$) showed there was a significant relationship between the biogas plant environment exposure and lung function test (LFT) with risk estimates (OR = 1.96, 95% CI 1.12, 3.45). The exposed group showed a higher proportion of abnormal lung function test in comparison with the unexposed group. Conclusion: In conclusion, workers in biogas plants environment have two times higher odds of having abnormal lung function test. Thus, the findings from this study can be used in the future planning by execution the optimal control measures as efforts to reduce the risk of respiratory-related disease in the biogas plant environment.