ABSTRACT

Rapid world developments nowadays have led to the explosion of global warming and climate change due to polluted environment from both natural and man-made origins. Malaysia has become one of the main countries in Asia with the highest level of air pollution problems. However, consciousness among the general public about the issue is not as substantial as the magnitude of the problem itself. Indoor air pollutants have been discovered. This research focuses on the physical characterization of airborne particulates, especially inhalable and respirable dust from possible sources such as transportations, nearby constructions, high number of visitors and lack of maintenance at the National Museum, Kuala Lumpur. The objective is to classify indoor particulate matters and also inside display showcases of the museum in determining the risk level of artifact deteriorations. The analysis is done to compare the mass concentration, size distribution and particle numbers of inhalable and respirable dust accumulated by 7 Holes Sampler and Cyclone Sampler located at the museum entrance, lobby, galleries and display showcases. The evidences suggest that respirable dust, which contains fine particulates, bring higher degree of illnesses than inhalable dust (coarse particulates). In addition, due to the results gathered, the size distribution of the sampled airborne particulates is between 'healthy' adult respirable convention and 'high risk' respirable convention. The high percentage of smaller size particulates is very risky to human health, especially children and elderly with certain diseases, for example cancer.