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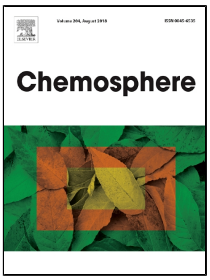

A Review of the Impacts of Tobacco Heating System on Indoor Air Quality versus Conventional Pollution Sources

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A Review of the Impacts of Tobacco Heating System on Indoor Air Quality versus Conventional Pollution Sources

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Abstract

With the introduction of novel and potentially less polluting nicotine containing products to the market, the impacts of their usage to indoor air quality as opposed to conventional pollution sources must be reviewed and considered. This review study aimed to comparatively analyse changes in indoor air quality as the consequence of tobacco heating system (THS) generated pollution against general indoor air quality in various micro-environments, especially with combustion-based pollution sources present. Indoor concentrations of formaldehyde, acetaldehyde, benzene, toluene, nicotine and $PM_{2.5}$ were reviewed and compared; concentrations of other harmful and potentially harmful substances (HPHCs) were discussed. Generally, the usage of THS has been associated with lower or comparable indoor air pollutant concentrations compared against other conventional indoor sources or environments, in most cases distinguishable above background, thus potentially being associated with health effects at prolonged exposures as any other artificial air pollution source. In the controlled environment the use of THS (as well as an electronic cigarette) resulted in the lowest concentrations of formaldehyde, benzene, toluene, $PM_{2.5,}$ among majority researched pollution sources (conventional cigarettes, waterpipe, incense, mosquito coils). The exposure to significantly higher pollution levels of benzene, toluene, and formaldehyde occurred in public environments, especially transport micro-environments.