Effect of Pyrolysis Temperature on Cadmium and Lead Concentration Distribution of Some Selected Tobacco Cigarettes in Nigeria

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Abstract.

Consumption of tobacco as cigarette or otherwise has been demonstrated to contribute to air pollution via smoke generation resulting in adverse health effect. Therefore, this study investigates the effect of pyrolysis temperature on the concentration, distribution of cadmium and lead between ash residue and smoke in some selected cigarettes in Nigeria. Four samples consisting of three different brands of cigarette, Benson, Excel, London and fresh tobacco leaves were considered. Each of the samples was pyrolyzed at different temperatures of 300, 400 and 500^oC and ash residues were collected and digested for determination of cadmium and lead concentrations using atomic adsorption spectrometer consequent upon which concentration in the smoke were calculated. For all the samples considered, it was observed that increasing the pyrolysis temperature from 300 to 500^oC resulted in a decrease in concentration of cadmium and lead in ash residue and an increase in concentration of cadmium and lead in the smoke.

Key words: Tobacco, cigarette, ash residue, smoke, combustion.

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