

# Oral Presentation

## Determination and Assessment of Heavy Metals in Tobacco Sold and Smoked In Palestinian Market

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### Abstract

Through smoking, important flux of heavy metals and many other toxins reaches smokers' lungs. This project reports the heavy metal concentrations in tobacco from samples of 25 cigarette products, sold in Palestine. Cadmium (Cd), lead (Pb), cobalt (Co), nickel (Ni), copper (Cu) and zinc (Zn) contents were determined in 25 brands of tobacco cigarette commonly available in Palestine by flame atomic absorption spectrophotometer. The concentration of trace metals in the cigarettes ranged, Cd: from 0.85 to 2.11  $\mu\text{g/g}$  with mean  $1.20 \pm 0.15 \mu\text{g/g}$ , Pb: 2.21 to 5.06  $\mu\text{g/g}$  with mean  $3.12 \pm 1.33 \mu\text{g/g}$ , Co: 0.18 to 2.61  $\mu\text{g/g}$  with mean  $1.09 \pm 0.28 \mu\text{g/g}$ , Ni: 3.42 to 6.23  $\mu\text{g/g}$  with mean  $4.92 \pm 0.53 \mu\text{g/g}$ , Cu: 11.86 to 20.35  $\mu\text{g/g}$  with mean  $15.21 \pm 0.34 \mu\text{g/g}$ , and Zn: 30.55 to 114.43  $\mu\text{g/g}$  with mean  $51.15 \pm 0.14 \mu\text{g/g}$ . Comparable results of trace metals are obtained in both imported and Palestinian cigarettes. The average trace metal contents of cigarettes available and sold in Palestine are Cd: 0.82  $\mu\text{g/cigarette}$  with range (0.60– 1.70)  $\mu\text{g/cigarette}$ , Pb: 2.13  $\mu\text{g/cigarette}$  with range (1.41 – 3.54)  $\mu\text{g/cigarette}$ , Co: 0.74  $\mu\text{g/cigarette}$  with range (0.12– 2.02)  $\mu\text{g/cigarette}$ , Ni: 3.37  $\mu\text{g/cigarette}$  with range (2.57– 5.66)  $\mu\text{g/cigarette}$  Cu: 10.42  $\mu\text{g/cigarette}$  with range ( 7.80– 20.11)  $\mu\text{g/cigarette}$ , Zn: 35.02  $\mu\text{g/cigarette}$  with range (20.10- 88.80)  $\mu\text{g/cigarette}$ . The results indicate that smoking and exposure to cigarette smoke is a serious problem to be taken into account when carrying out epidemiological studies on human exposure to trace metals.