

**Status of heavy metal pollution on roadside soils and vegetation and its correlation with traffic density in Dar es Salaam city**

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Soil and plant (*Cynodon dactylon* and *Cynodon plectostachyus*) samples were collected at distances of 1 m, 5 m, 15 m, 35 m, 50 m, and 150 m from the road edge at five sites, viz. Lugalo-Area E, Makongo, Cafe Latino, Ubungo-Extetal and Victoria in Dar es Salaam. The five sites differed in traffic densities. The soil and plant samples were analyzed for arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), manganese (Mn), nickel (Ni), lead (Pb) and zinc (Zn) levels by atomic absorption spectrophotometer and their relationship with traffic density was found out. The results showed that pollution of roadside soils and plants occurred from the road edge up to 35 m from the road for most metals. The concentration ranges for metals (ppm) in the roadside soils were as follows: As (0.03 - 0.65), Cd (< 0.01 - 0.75), Cr (0.63 - 5.88), Cu (2.50 - 10.75), Mn (178.8 - 2338), Ni (0.75 - 3.63), Pb (6.25 - 152.5) and Zn (8.88 - 197.5). And the concentration ranges of metals (ppm) in the roadside plants were as follows: Cd (0.05 - 4.6), Cr (< 0.02 - 4.55), Mn (1.8 - 650.6), Ni (0.80 - 8.20), Pb (< 0.03 - 35.55) and Zn (19.6 - 162.5). The metal content of all soil samples, except for Mn and Ni, decreased exponentially with increasing distance from the road edge. The metal contents in roadside plants did not show such a trend except for Pb and Zn contents in *C. dactylon*. The levels of all metals in the soil exhibited positive correlation with traffic density except for Mn and Ni whose contents in the soils exhibited negative correlation with traffic density. The correlation of As with traffic density is a finding that has, so far, never been reported on. The metal contents in the vegetation showed positive correlation with traffic density except for Cd and Cr contents in *C. plectostachyus* and Mn in both *cynodon* grasses. This implies that As, Cd, Cr, Cu, Pb and Zn in roadside environments owe their source mainly from traffic emissions. Manganese and nickel owe their source mainly from soil. It is recommended that vegetable cultivation and/or livestock foraging should be restricted to land at a distance beyond 35 m from the edge of roads for public health reasons.