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Accumulation of heavy metals by three moss species and selection of the best candidate as a bioindicator

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Three moss species, *Barbula sp.* 1, *Barbula sp*. 2 and *Bryum sp.* were used as bioindicators to monitor heavy metal accumulation (Pb, Ni, Cu Cr and Cd) in 12 sampling sites in Sapugaskanda industrial area where all three species were distributed commonly in all the sites. Identification of collected mosses was done with the comparison of authenticated specimens of National Herbarium, Peradeniya. Bioaccumulation ability in these three mosses was evaluated by Atomic Absorption Spectrophotometry (AAS).

The results indicate that the *Barbula sp*. 2 absorbs metals Pb, Ni and Cu from atmospheric deposition more effectively compared to other two moss species. The high sensitivity to Cd and Cr was seen in *Barbula sp*. 1. However, this study shows that the most suitable species for heavy metal deposition studies as *Barbula sp*. 2 in which the concentrations of heavy metals are found to be higher than in other species.

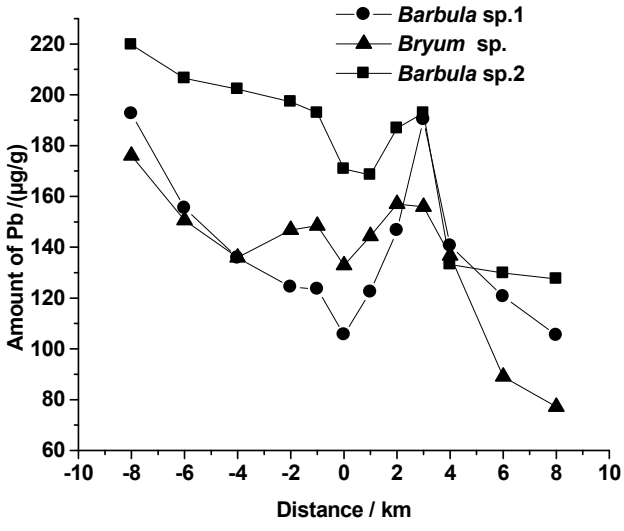

Figure 1 Concentration of Pb in three moss species

Sapugaskanda oil refinery was taken as the centre and distances were indicated with reference to the oil refinery. Towards Northeast considered as positive values and to the Southwest considered as negative values.

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