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The role of washing of moss samples in analysis of heavy metal concentrations in moss biomonitoring studies

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Biomonitoring of multi-element atmospheric deposition using terrestrial moss is a well-established technique. Although the technique is widely known, there were very limited records of using this technique to study atmospheric air pollution in Sri Lanka.
In the literature a very limited number of studies has been carried out regarding the washing conditions during moss biomonitoring studies. The aim of this study was to optimize the washing conditions relevant to moss species (*Hyophila involuta*) which is widely spread in Sri Lanka. The outcome of the washing step was determined by diverse parameters: Number of washes, duration of washing, use (or not) of shaking, type of water and relation between the weight of the moss and the volume of water.

Sampling was carried out in the Dalugama area in November 2012 (dry climatic conditions) and April 2013 (wet climatic conditions) and the heavy metal contents of moss samples were analyzed by Atomic Absorption Spectrophotometry (AAS).

The atmospheric deposition of heavy metals in moss was considerably lost during the first wash. The percentage lost during the first washing changes with the local climatic condition. However, the number of washes does not affect the results after the first wash and therefore washing twice is suggested for further analysis.

The time duration, use of shaking and volume of deionized water to moss ratios did not significantly change the bioaccumulation result. Washing moss species (*Hyophila involuta*) twice with deionized water is suggested for future biomonitoring studies.

Keywords: biomonitoring, heavy metal, *Hyophila involuta*, mosses, washing

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