

Assessment of the elemental composition of areca nut and soil samples collected in Northeast India

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In areca nut and husk, fourteen elements (As, Ca, Cd, Cl, Co, Cu, K, Mg, Mn, Na, Rb, Sb, & Zn) were determined, while 34 elements including rare earth elements were detected in the corresponding soil samples using instrumental neutron activation analysis and Atomic Absorption Spectrometry methods, whereas the concentration levels of Hg in tested samples are negligible, perhaps, below the detection limits. No rare earth elements were detected in edible areca nut. The concentration levels of various essential elements and heavy elements such as As, Cd, and Cu present in areca nut are within the permissible levels, whereas Pb content is relatively higher than FAO/WHO's permissible levels. The order of bioaccumulation index for heavy metals in areca nut was $Cd > Sb > Cu > Zn \approx Mn \approx Co > Pb \approx As$. Bioaccumulation index values are indicating that areca palm may not be able to accumulate other heavy elements in the edible areca nut, except for Cd. On the basis of pollution indices, Northeast Indian soil may be relatively unpolluted.

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