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Assessment of Heavy Metals Tolerance in Leaves, Stems and Flowers of *Stevia rebaudiana* Plant

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Abstract

Stevia has become rather widespread over a wide range of climatic locations around the world and can apparently be successfully grown under different cultivation conditions. Heavy metal accumulation of *Stevia* extract is dependent on obtaining heavy metals from the soil and water. Heavy metals from plant sources may also vary from place to place because soil heavy metals content varies geographically, thus, they have become the subject of many research projects. *Stevia* plant is easily contaminated during growth, development and processing and for this, an extensive research is needed to explore the characteristics of the heavy metal produced by the plant. The heavy metals produced from the herb and its toxicity of *Stevia* plant is not well documented and scientific evidence is limited to establishing *Stevia* plant as a medicinal plant. The samples were collected from Malacca, Malaysia. The fresh leaves, stems and flowers of the *Stevia rebaudiana* plant were dried using oven equipment and were grinded until fine to make powder and then of each extracted using Microwave digester. The analysis of samples was carried out by using an Inductively Coupled Plasma Mass-Spectrophotometer (ICP-MS) with different mode equipment to compare results of heavy metals in *Stevia rebaudiana* plant. Heavy metal accumulation in *Stevia rebaudiana* from leaves, stems, and flowers extraction is reported. Heavy metals in leaves, stems and flowers of *Stevia rebaudiana* presented variety of elements such as As, Cd, Cr, Cu, Fe, Mg, Pb, Se, Zn, Al, Ag, Co, Ca, Mn and Ni. The high tolerance to heavy metals in leaves, stems, and flowers of *Stevia rebaudiana* were presented at fifteen parameters below the permissible limit in plant and can be used as food product or therapeutic agent in traditional medicine.

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