

## **A comparative study of health risks of Fe and Ni in the vegetables collected from selected farming areas of Peninsular Malaysia**

### **ABSTRACT**

This study investigated the concentrations of Ni and Fe in 18 vegetables (12 fruit types and 6 leafy types) and their habitat topsoils collected from three farming sites in Peninsular Malaysia. The levels of Ni and Fe are all significantly ( $P < 0.05$ ) higher in the leafy vegetables than those in the fruit vegetables. It is found that the Ni levels in the vegetables are highly correlated with the three geochemical and non-resistant fractions of the habitat topsoils. This indicated that Ni geochemical fractions in the habitat topsoils are considered readily and potentially bioavailable to the vegetables. The Fe levels in the vegetables are highly correlated with the 'acid-reducible' fraction of the habitat topsoils, indicating the Fe transfer of this geochemical fraction is likely to occur to the vegetables. The positive relationships indicated the potential of edible vegetables as good biomonitors of Ni pollution in the habitat topsoils. For the health risk assessment, all the target hazard quotient values for Ni and Fe in the 18 vegetables investigated in both adult and children are all below 1.00. This indicated that there was no non-carcinogenic risk of Ni and Fe to the consumers for both adults and children.

**Keyword:** Ni and Fe; Vegetables; Target hazard quotient; Biomonitor