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# Pesticides and metabolites in cassava, eucalyptus, plum and cashew leaves and roots in relation to a point source in Kibaha, Tanzania

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## Abstract

Leaves of *Eucalyptus sp*, *Prunus domestica* (plum), and *Anacardium occidentale* (cashew), as well as roots and leaves of *Manihot esculenta* (cassava) were used to study the local distribution of pesticides and metabolites from a point source, an old storage site at Vikuge farm in Tanzania. The GPC-cleaned extracts were analyzed by GC-ECD and GC/MS. Eleven organochlorine pesticide residues namely pentachloroanisole, *p,p'*-DDT, *o,p'*-DDT, *p,p'*-DDE, *o,p'*-DDE, *p,p'*-DDD, *o,p'*-DDD, α-HCH, β-HCH, δ-HCH and ε-HCH were detected in the samples. The concentrations of total DDT were 818 ng/g fw in *Eucalyptus sp*, 16 ng/g fw in *A. occidentale* and 4 ng/g fw in *P. domestica.* In *M. esculenta*, total DDT ranged from 191 – 586 ng/g fw in roots and 7 – 425 ng/g fw in leaves. The concentrations of total HCH were up to 15 ng/g fw in *Eucalyptus sp*, while the concentrations of pentachloroanisole were up to 2 ng/g fw in leaves of *M. esculenta*. There are very strong positive correlations in the concentrations of the detected compounds, suggesting that they have a common source. The low DDE/DDT ratios (0.02 – 0.07) in all samples indicate input of non-degraded DDT from the source. The high α-HCH/γ-HCH ratios in some samples (> 3.1 – 10) indicate input of technical HCH. The concentrations of total DDT in cassava roots were either very close to, or greater than, the FAO/WHO limit, indicating risks and concern to public health.

*Keywords:* DDT; Pentachloroanisole; Hexachlorocyclohexanes; Cassava; Eucalyptus; Tanzania

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