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Concentrations of pesticide residues in grasses and sedges due to point source contamination and the indications for public health risks, Vikuge, Tanzania

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Abstract

The concentrations of organochlorine pesticide residues were determined in roots and leaves of giant sedges (*Cyperus exaltatus*), fresh leaves and dry hay of guinea grasses (*Panicum maximum*), and in stems and leaves of elephant grasses (*Pennisetum purpureum*) in the vicinity of a point source of contamination, an old storage site at Vikuge farm in Tanzania. The GPC-cleaned extracts were analyzed by GC-ECD and GC/MS. The concentrations of total DDT ranged from 83 – 18274 ng/g, 166 – 7922 ng/g, and 68 – 405 ng/g, on fresh weight bases, in *C. exaltatus*, *P. maximum* and *P. purpureum*, respectively. The concentrations of total HCH were up to 74 ng/g fw in leaves of *C. exaltatus*, 43 ng/g dw in dry hay of *P. maximum*, and 10 ng/g fw in stems of *P. purpureum*. Aldrin and dieldrin were only detected in *C. exaltatus* and their concentrations were up to 11 and 8 ng/g fw, respectively. The strong positive correlations between the concentrations of the detected compounds suggest a common source. The concentrations of total DDT were far above the Australian extraneous maximum residue limit in primary animal feedstuffs. These findings indicate potential risks and concerns for livestock and public health. The concentrations of aldrin, dieldrin and lindane were lower than the Australian limits.

Keywords: DDT; hexachlorocyclohexanes; aldrin; dieldrin; grasses; sedges; Tanzania

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