## Lusala (*Dioscorea hirtiflora* Benth. subsp. *pedicellata* Milne-Redh): a wild edible tuberous vegetable which supports rural livelihoods in southern Zambia, shows considerable genetic diversity, and can be propagated for conservation and domestication

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## Abstract

Some traditional African vegetables are wild edible plants which are foraged rather than cultivated as crops. Dioscorea hirtiflora Benth. subsp. pedicellata Milne-Redh. (lusala or busala) is a wild tuberous vegetable foraged from the miombo woodlands of Zambia. This local delicacy blends well with groundnuts, eggs, fish, and meat in meals. Its collection, consumption and sale are widespread in southern Zambia. Of rural households interviewed, 83, 96 and 59% collected, consumed and sold lusala, respectively, during the dry season from March to September. In the peak month for foraging (April), each rural household within the respective groups collected 27.9kg, consumed 12.0kg, and sold 35.7kg of tubers on average. Amongst the latter group, the reported household annual income from lusala sales was about 44% of that from their maize crop - and therefore important to household income in the dry season. Lusala also supported market traders' businesses, each purchasing an average of 899kg valued at USD383 during one month (August) for resale. Lusala populations in the wild are at risk from overharvesting and deforestation. It was propagated successfully from tubers, minitubers, minisetts, and vine cuttings, but high dormancy often delayed stem emergence. Considerable genetic diversity was detected amongst 185 lusala samples collected across Zambia. Analysis of molecular variance showed 65% of the variation between populations and only 35% within populations, with five clusters of samples nationally. Genetic resources conservation combined with more sustainable foraging and/or possible domestication will be needed to sustain livelihoods and reduce the decline of lusala in the wild.