Agrotechnol 2016, 5:3(Suppl)
http://dx.doi.org/10.4172/2168-9881.C1.022

Determination of agro-biodiversity practices and neutraceutical value of indigenous vegetables among women small holder farmers in Vihiga District, Kenya

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Participatory case building research was used in assessing the potential benefits of neutraceuticals agro-biodiversity of commonly grown indigenous vegetables and the soils in West Kenya. Key informant interviews conducted on purposively selected women smallholder farmers (n=30) were used to establish the status of indigenous plant foods and land use practices in each target site. A nine decision point concept was used to map out the land use allocations in relation to the Women Smallholder Farming Patterns and Practices at the study Sites. X-ray Fluorescent Spectroscopic analysis was used to determine the mineral profile and content of plant germplasm and soils collected from the farmers. The minerals were consistently measured in an increasing concentration order with potassium as highest, followed by calcium, manganese, iron, zinc and strontium as lowest concentrated mineral in plant germplasm and soils. Micronutrient of germplasm was based on the variation picking test – XRF technique developed. Findings from these analyses identified the promising leafy vegetables as *Curcubitacea* and *Cleome gynandra, Amaranth, Crotalaria, Solanum, Vigna unguiculata* and *Corchorus* in the higher and middle nutrametric grades respectively. Range suggesting that there are variations in the micronutrients content of the vegetables hence existing agro-biodiversity. The spatial location of plants in relation to the housing unit can serve as collections of agrobiodiversity conservation since farm activities revolve around the smallholder farm units. This is an efficacious starting point for the value chain evaluation of plant- based micronutrient density development to empower farmers to retain and restore the agro-biodiversity on the farm units.

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Genetic fingerprinting of root knot nematode (*Meloidgyne spp*) as serious pest in crop production in Egypt

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Nematodes *Meloidogyne spp* are major pests all over the world and causes diseases to economically important crops. The annual loss worldwide is approximately 82 billion dollar. Samples were collected from different crops all over Egypt. Nematode samples identified by using two polymerase chain reaction which are (rDNA) and (mtDNA). The RAPD technique was used to investigate the genetic diversity of these nematodes. The common populations were M. incognita and M. javanica and were distinguished by differences in fragment patterns with OPB3, OPB11, OPB17 and OPG6. Two RAPD markers were detected; one was specific for M. incognita population with primer OPK2 at fragment size of 1000bp and the second was specific for *M. javanica* population with primer OPB3 at size of 1100bp this two markers were used as SCAR markers, which were sequenced and two PCR primer pairs designed for *M. incognita* and *M. javanica*. The amplification of mtDNA is used to distinguish genera and species of root knot nematode. Primer annealing sites were located in the 3 portions of the mitochondrial gene coding for cytochrome oxidase subunit II the 16 S rRNA gene following PCR amplification fragment of size 1700bp specific for genus meloidgyne was produced. Digestion of the amplified product with restriction enzymes allowed discrimination among different meloidgyne species with identically sized amplification products. Hinf I digestion of the 1700bp fragment produce two bonded patterns in M. javanica and three bonded patterns in M. incognita, that help in investigating genetic diversity also identifying molecular markers characteristics of nematodes (M. javanica and M. incognita)

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