

Determination of Some Mineral Components of Cowpea (*Vigna unguiculata* (L.) Walp) Using Instrumental neutron activation analysis.

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Abstract

Some mineral elements in the seeds of the cowpea were determined using instrumental neutron activation analysis. The cowpea cultivars were made up of improved varieties (Soronko, Gbeho, Ayiyi, Asontem, Asontem1, Bengpla, Asetenapa and Adom), farmers' accessions (87/7, 87/1, 87/27, 87/147, 87/34, 87/49, 87/83, 87/157, 87/149, 87/30, 87/153, 96/046, 87/137, 96/129, BTB 96/091, OAA 96/30, BTB 96/054), and experimental materials (IT870-677-2, Caroni, Kaase Market, 1977 and 1239). A total of 14 elements (Al, Ca, Mg, V, Mn, Br, Cl, K, Na, Zn, Cu, Ta, Si and In) were detected in the seeds of the 30 cowpea cultivars. Five of the elements (Na, K, Mg, Ca and Cl) identified are classified as major elements in the human body, while four (Mn, Zn, V, Si, Cu and I) are trace elements. The major elements K, Na, Ca, Mg and Cl were detected in high concentration in cultivars 96/129, 87/137, Ayiyi, 87/34 and 87/49, respectively. The trace elements Mn, Zn, V, Si, Cu and Al were detected in high concentration in cultivars 87/34, 87/27, 87/34, Bengpla, 87/34 and 87/34, respectively. From the results the following accessions could be selected and incorporated into a cowpea mineral nutritional improvement programme: 96/129, 87/137, Ayiyi, 87/34, 87/49 and 87/27. The presence of the five major elements and the trace elements indicates that cowpea has a rich source of mineral elements and, therefore, can be used to improve the diet of both humans and livestock.