

Assessment of genetic modification in imported maize seeds and processed soybean foods in Tanzania

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In the current study, DNA and protein based methods were used for the assessment of genetic modification in imported maize seeds and processed soybean foods in Tanzania. A total of 30 imported maize seed samples were collected from seed companies, research centres and farmers from six maize growing regions; Ruvuma, Mbeya, Iringa, Morogoro, Kilimanjaro and Arusha. Similarly 31 samples of soybean food products were obtained from supermarkets and major shops in three major cities of Tanzania, namely Dar es Salaam, Arusha and Mwanza. A protein based method; Immunochromatographic strip (ICS) was first evaluated and optimised before applied on the screening of all maize samples targeting specifically a genetically engineered Cry1A (b) protein. Standard protocols were then applied for the extraction of genomic DNA from all samples. Standard singleplex Polymerase Chain Reactions (PCRs) were performed on genomic DNA extracts targeting different specific gene segments. Primer pairs CDPK/cry1A(b), IV01/cry1A (b), HS01/cry1A(b) and 41_95-F/41_95R were used to amplify specific genome integration segments in Event176, BT11, MON810 and GTS 40-3-2 respectively. Results from both ICS and PCR strategies used on maize seeds in this study demonstrated absence of GM contents; *cry1Ab* gene from maize seed samples tested. Likewise results from PCR strategy on soybean indicated absence of GM contents; *cp4 epsps* gene from tested soybean food products. Importantly in the present study, for the first time in Tanzania the utility of ICS methods has been successfully demonstrated, optimised and adopted for rapid GM screening particularly in laboratories lacking state-of-the-art equipments and technology.