
Chemical contamination in widely consumed grains available in local market

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Pesticide overuse and misuse may result in contamination of numerous food commodities with chemical residues leading to bioaccumulation through food chains and building up to exceeded levels of toxins inside the body and in the environment. Grains are extensively consumed in Sri Lankan meal due to its high nutritional values. Variety of grains are cultivated in our country and pesticides are used in cultivation as well as in storage to prevent pest attack. Therefore the investigation of the possibility of having pesticides or residues in grains is essential. In this study, four some selected grain types such as chick pea, green gram, corn and dhal collected from Matara area were analysed in duplicate for contaminants. Contaminants were extracted from each sample according to a slightly modified QuEChERS method (AOAC Official Method 2007.01) and analysed by GC-MS. It was observed that chick pea samples were contaminated with diethyl phthalate, mono-(2-ethylhexyl ester), and benzene dicarboxylic acid. Green gram samples were contaminated with diethyl phthalate and succinic acid while the corn samples were contaminated with diethyl phthalate and 4-amino-6-hydroxypyrimidine. No detectable contaminants were found in dhal samples. Most of the contaminants found were hazardous chemicals, solvents used in pesticides, compounds used in plastic manufacturing process. These findings well demonstrate the possibility of contamination of grains with toxic chemicals and the necessity of awareness of the contamination.

Keywords: Grains, Contamination, Hazardous chemicals, QuEChERS method

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