Evaluation of different household practices to decontaminate organophosphate insecticide residues from *Amaranthus tricolor* L.

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ABSTRACT: *Amaranthus tricolor* L (Amaranth) is a major leafy vegetable extensively cultivated in Kerala. Efficiency of different decontaminating methods viz., washing, cooking, 2% common salt, 2% vinegar, 1% turmeric, 2% tamarind and 1% veggie wash (produced by Kerala Agricultural university, Vellayani), in the removal of organophosphate insecticide residues from amaranth, sprayed with different organo phosphate insecticides viz., chlorpyrifos 20% EC, dimethoate 30 EC, ethion 50% EC, malathion 50 % EC, profenofos 50% EC and quinalphos 25% EC, indicated that dipping in 1% veggie wash for 20 minutes followed by three further washings plus cooking was found to be most effective in removal of OP insecticide residues (83%), followed by 1 % veggie wash for 20 minutes, 1% veggie wash for 10 minutes plus cooking and 2% vinegar (78, 76 and 74% respectively).

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KEY WORDS: Amaranth, pesticide, residues, decontamination.

INTRODUCTION

Amaranth is extensively cultivated as a green and leafy vegetable in many temperate and tropical regions. It has excellent nutritional value because of their high content of essential micronutrients such as ß-carotene, iron, calcium, zinc, phosphorous, vitamin C and folic acid (Schonfeldt and Pretorius, 2011). In India, it is cultivated largely in the southern states. It is raised throughout the year in paddy lowlands, garden lands and homesteads. The crop cultivated throughout the year. Farmers use chemical pesticides of a wide range and often in excessive dosage and at close intervals. This tendency leads to high residues on products reaching the market. Nair *et al.*, (2013) reported that most of the agricultural commodities tested had multiple residues containing three to six pesticides.

Department of Agriculture, Government of Kerala and Kerala Agricultural University through the Plan Scheme “Production and marketing of safe to eat (pesticide free) vegetables, fruits and food products for sale through government outlets” revealed that out of 34 red amaranthus samples analyzed during the period of January – December 2013, 14 samples were found with insecticide residues. In these detected insecticides, most of the residues belong to organophosphate group (PAMSTEV, 2014). However, owing to their widespread use together with their unique physical, chemical and biological properties, these insecticides have raised serious concern among the public regarding their adverse