

Evaluation of residual diazinon and chlorpyrifos in children herbal medicine by SPME and GC-FID

F. Emami^{1,*}, G. Asghari¹, M. Mosaddegh²,

¹*Department of Pharmacognosy and Isfahan Pharmaceutical Sciences Research Center, Faculty of Pharmacy, Isfahan University of Medical Science, Isfahan, Iran*

²*Medicine Faculty, Yazd Shahid Sadoughi University of Medical Sciences, Yazd, Iran.*

Background and Aims: Pesticides are used extensively in agriculture to enhance the food production by controlling the unwanted insects and disease vectors, however it has some hazard on biological system of human especially children. The present study was designed to examine the residual of organophosphorus pesticides; Diazinon, Chlorpyrifos; in children herbal medicines available in the market.

Methods: Five children herbal medicines dosage form were extracted with SPME (Solid Phase MicroExtraction) using PDMS-DVB fiber. Then the extracts were injected into a GC. The gas chromatograph was Younglin model YL 6100 equipped with a flame ionization detector. The column was Technokroma 60 m length, 0.53 mm internal diameter and 1.25 μ m film coated. The presence and quantity of Diazinon and Chlorpyrifos was evaluated using their standard curves.

Results: Trace amount of chlorpyrifos and diazinon was detected in the samples. Based on European pharmacopeia, threshold limits of chlorpyrifos and diazinon residues for medicinal plant materials are 0.2 and 0.5 mg/kg. Our analysis results showed that residue limits of these two pesticides in five children herbal medicines are ignorable.

Conclusions: The use of herbal products as the first choice in self-treatment of minor conditions continues to expand rapidly across Iran. This makes the safety of herbal products an important public health issue. With this study we recommend to do a study with more herbal product samples using GC-MS.

Keywords: Diazinon; Chlorpyrifos; SPME-GC-FID; Children herbal medicine