

METHOD VALIDATION BY GC-MS TO DETERMINE PYRETHROIDS METABOLITES IN URINE

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Background and Aims: Pyrethroids (PYRs) Pesticides are synthesized from prototype pyrethrins (naturally occurring toxin) derived from the flowers of *Tanacetum cinerariaefolium*, in order to increase their environmental stability and selective insecticidal properties. PYRS are widely used in agriculture, forestry, veterinary, nurseries, in textile industry, and in public health programs worldwide. PYRs are one of the most frequently and widely used class of insecticides.

The exposure to this classes of pesticides can increase the probability of developing Parkinson's disease[1], some of these PRYs may be endocrine disruptors and they have been listed as such by the Environmental Protection Agency (EPA) [2].

Human exposure to PYRs can occur via food intake, inhalation and dermal absorption[1]. Proper usage of PYRS is enforced, in part, by periodic monitoring PYRs in food samples in spite of their short life time [3] but more important monitoring PYRs organism. Can be assessed by measuring intact compounds or their metabolites in urine or blood, but due of rapid metabolism, urine analyses is more efficient [4].

The aims of this work were development of a reliable health risk assessment through the analysis metabolites of PYR pesticides in the population and development and validation method for analysis of metabolites of PRYs in urine samples by Gas Chromatography Mass Spectrometry (GC-MS).

Methods: Solid phase extraction (SPE) with Strata X cartridges, followed derivatization with 1,1,1,3,3,3-Hexafluor-2-propanol (HFIP) and N',N'-Diisopropylcarbodiimid (DIIC) and finally quantification method with Termo GC ultra GC-MS equipped with a column ZB.XLB (30x0,25mm ID 0.25µm film thickness Phenomenex).

Results: Concentrations ranging from 0.5 to 10µg/L in studied urine previous spiked with 3 phenoxybenzoic acid (3PBA) and 2 Phenoxybenzoic acid (2PBA) as an internal standard. The quantification ions are: 135, 141,169,196,197 and finally 364. With this method were obtained a calibration curve with R=0,992.

Conclusions:

This method is a reliable method for detection of PYRs metabolites in urine samples

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