

## Determining Rest Concentration of Diazinon in Agriculture Products (Melon And Cucumber) with GC-NPD and GC-MS

### Methods

Mitra Moalem<sup>1</sup>, Ahmad Ghorbani<sup>2</sup>, Seied Adel Moalem<sup>3</sup>, Mehdi Balali<sup>4</sup>, Hassan Solhi<sup>5\*</sup>

#### ABSTRACT

**Introduction:** Diazinon is a moderately toxic broad-spectrum organophosphate, with a LD50 of 350 to 400 mg/kg for humans. Diazinon is absorbed through the skin and gastrointestinal tract and is rapidly metabolized within a few hours. Diazinon residues in melons and cucumbers have recently become a major health concern in Iran. Thus we decided to investigate Diazinon levels in melon and cucumbers.

**Method and Materials:** Twenty cucumbers and 30 melons were randomly purchased from the market in Mashhad. The extraction procedure was in HR-P columns precondition with methanol and water. The subsequent elution of diazinon was accomplished by a mixture of hexane-ethyl acetate (1:1, v/v) prior to determination by GC-NPD and GC-MS/MS. Standards were prepared spiking blank juice samples to contract the observed matrix effect.

**Results:** Mean recovery rate for diazinon was 95.4% with relative standard deviation lower than %9 in a concentration range of 5-200ng/ml. Mean and SD of diazinon in melons was 107.64±38.5 ng/kg. Diazinon was not detected in cucumber samples. It was later confirmed that diazinon was not used for the crops of these cucumbers.

**Conclutions:** GC-NPD and MS/MS was developed to determine residues of diazinon in melons and cucumbers. The GC-MS/MS analytical method showed a high efficacy for determination of dizinon residues in the fruits.

**Keyword:** Diazinon, Pesticides, Melon, Gaschromatograpy, Massspectrometry, SPE.

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1-MSc of Toxicology

2- Department of Toxicology, Ahvaz Medical University, Ahvaz,Iran.

3- Department of Toxicology, Mashhad Medical University, Mashhad, Iran.

4- Department of Toxicology, Mashhad Medical University, Mashhad, Iran.

5- Department of Toxicology, Arak Medical University, Arak, Iran.

\*Corresponding Author;Email:solhi2@yahoo.com