

Name of Candidate: Mohamed Atta Ali Shalaby **Degree:** Ph.D.
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Supervisors: Dr. Ali Mohamed Shams El din
Dr. Mohamed Mohamed Mahmoud Azab
Dr. Mohamed Naguib Saad Haggag
Department: Plant Protection (pesticides)
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ABSTRACT

The present study aimed at investigating the following:

1. Monitoring certain organophosphorus and carbamate pesticides in grape fruits and leaves.
2. The persistence of carbendazim, cyflufenamid, fenpyroximate and lufenuron pesticides on grapes orchards.
3. The effect of certain environmental conditions on the fate of carbendazim, cyflufenamid, fenpyroximate and lufenuron under field conditions.
4. Identifying the photodegradation products of carbendazim and cyflufenamid after exposure to UV-rays using LC-MS MS.

Obtained results could be summarized in the following:

The most commonly detected organophosphorous residues from grape fruits and leaves were profenofos, diazinon, triazophos, chlorpyrifos, chlorpyrifos methyl, prothiofos, pyrazophos, azinphos-ethyl, enthoate, fenitrothion, cadusafos, pirimiphos-methyl and cyanophos while oxamyl was the most commonly detected carbamate followed by carbofuran, methomyl and carbaryl from the same group. grapes samples from Qilyubia Governorate were the most contaminated compared to Minufiya and Sharkiya governorates samples.

grape fruits and leaves retained higher amounts of Lufenuron than Other pesticides. The rates of disappearance (loss) of residues were faster in cyflufenamid then fenpyroximate then carbendazim and finally lufenuron treatments. Washing grape leaves contaminated in water removed higher amounts of deposits than those removed from fruits. raisin processed from grape fruits collected one hour after spraying with fenpyroximate and lufenuron could be used safely immediately after processing but after one day with carbendazim and cyflufenamid.

The loss percentages of carbendazim, cyflufenamid, fenpyroximate and lufenuron increased with increase of temperature and the time of exposure to temperature. The rates of carbendazim, cyflufenamid, fenpyroximate and lufenuron degradation were higher as a result of exposure to direct sunlight than UV-rays.

The degradation products of carbendazim were (2-Methyl-5-nitrobenzimidazole) (2,1,3-Benzoxadiazole-5-carbonitrile) (1,2,4-Benzotriazine) (2,4 cyclopentadiene-1,1-di- carbonitrile) (Benzenediazonium) (2-amine-1H-benzimidazole (2-AB)) (159 (192 - C H 3 O H)).

The degradation products of cyflufenamid were (2,3-difluoro-6-(trifluoromethyl)nitroamine) (2,3-difluoro-6-(trifluoromethyl) benzamidine) (2,3-difluoro-6-(trifluoromethyl)benzamide) (2,3-difluoro-6-(trifluoromethyl) benzenecarboximidamide).

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