SPECTROPHOTOMETRIC DETERMINATION OF CYPERMETHRIN INSECTICIDE IN EGGPLANT, OKRA AND TOMATO COLLECTED FROM DHAKA CITY

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Executive Summary

A sensitive spectrophotometric method was initiated for the determination of cypermethrin residues from 75 collected samples of different vegetables (tomato, okra and eggplant). The reason for choosing a spectrophotometric method is to adapt a rapid, low cost and simple analytical method for the determination of cypermethrin at trace levels from vegetables. This method is sensitive enough to measure residue. The colour system obeys Beer's law in the range of 0.12-0.68 ppm of cypermethrin. The principle of this spectrophotometric method is based on the fact that cypermethrin is hydrolyzed to give cyanide ion, which react with potassium iodide (KI) and leuco crystal violet (LCV) to produce a crystal violate dye which can be measured in spectrophotometer using the wavelength of 595 nm. A total of 75 samples (25 samples of tomato, 25 samples of okra and 25 samples of eggplant) were collected from five different locations (Kawran Bazar, Jatrabari, Shanti Nagar, Shyamoli and Mirpur-1) in Dhaka city. Among the 25 analyzed samples of tomato, 2 samples (8% of the total number of samples) contained residues of cypermethrin, where one sample contained above the maximum residue limit (MRL) and one was below MRL. Out of 25 samples of okra, 2 samples (8% of the total number of samples) contained residues cypermethrin, however both were below the MRL. Among the 25 analyzed samples of eggplant, 3 samples (12% of the total number of samples) contained residues of cypermethrin, where one sample contained above and two were below MRL. This study reflects the overall cypermethrin residue remain in tomato, okra and eggplant collected from different markets of Dhaka city, which will help the consumer to be aware of their health and safety

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