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Analysis of 3-methyl-4-nitrophenol, a major metabolite of fenitrothion in mice urine using HPLC

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3-methyl-4-nitrophenol (MNP) is a major metabolite of fenitrothion and is considered as a potential risk to public health due to its genotoxicity and carcinogenicity. In this study, a method was developed and validated for quantification of urinary MNP using HPLC. Mice urine was collected after 24 hours following administration of fenitrothion (FEN) treated coffee through oral gavage. MNP was extracted from urine with a simple liquid-liquid extraction. The analyte was then subsequently determined using HPLC after re-extraction with ethyl acetate.

The method was validated using ICH guideline for the validation of analytical procedures. Accordingly the selectivity, linearity, limit of detection and quantification and precision of the developed method was determined. All of the validation parameters showed that the method is valid for the determination of MNP in urine sample. Using this method it was possible to detect low concentration of MNP in urine samples down to 0.87 mg/mL.

The sample was analyzed with this validated method and the respective concentration of the MNP was found to be 31.11 µg/mL. Accordingly 10.37% of the total FEN administered was metabolized to MNP.

Biography

Abdrrahman Shemsu has completed his Bachelor degree in pharmacy and MSc in medicinal Chemistry from Mekelle University and Addis Ababa University respectively. He is currently a lecturer of medicinal Chemistry at University of Gondar. He is also teaching at the Central College of health science, Addis Ababa medical College and Abyssinia College of health sciences. He has published two researches in global journal of pharmaceutical research and international journal of pharmaceutical and health care research.

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