Analytical methods for diagnosis a mixture of narcotic substances in seized materials

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Abstract

Introduction: In the present study, reversed-phase high-performance liquid chromatography-ultraviolet (HPLC-UV) method was developed and validated for the three narcotic substances in grains tablets. The process of analysis used in the detection and qualitative assessment of narcotic substances includes three stages. **Materials and Methods:** The first detection uses the spot color under with the help of microscope (20% $HC_2H_3O_2$ and platinic chloride) as detector where it interacts with the molecule and gives a specific color of that molecule which could be detected clearly by an optical microscope with strength Zoom 200 Mega pixels and comparing the obtained images with photos of standard models. **Results:** This method was most important in the detection of the first narcotic substances. The other detection involves HPLC-UV technique using the Arcus EP-C18; 5 μm, 4.5 × 250 mm column with a flow rate 1.2 ml/min at 25°C and wavelength 275 nm where the number of samples in the mixture of narcotics is isolated and diagnosis of the initial detection is confirmed by the number of peaks in this chromatogram. Hence, the number of peaks in this method is three peaks indicating clearly the number of materials in the mix. The third detection was conducted by gas chromatography (GC)-mass technology and included the separation of chromatography in the first phase and then estimation of the mass spectrum of each material in the mix using the instrument (GC-mass spectrum [GC-MS], MSDCHEM\1\METHODS\MUAFAQ.M) for the determination of M/Z negative ions at range temperature (70–375°C). **Conclusion:** The results of the microscopic analysis showed the appearance of three forms of the three studied compounds that are very similar to the standard images of the same compounds. The HPLC analysis showed the appearance of three clear peaks of the compounds in the mix. The GC-Mas analysis showed three compounds in the mix. All results of the analysis obtained indicate the accuracy and sensitivity of the method used in the analysis and measurement.

Key words: Narcoticraw grains, psychotropic materials, three method diagnoses

INTRODUCTION

Diagnosis of a mixture of narcotics is due to the fact that forensic analysis must be trusted. The methods used in the analysis show a high sensitivity in the detection of trace quantities of materials in the matrices that have been analyzed, high-performance liquid chromatography (HPLC) and gas chromatography–mass spectrum (GC-MS) are most widely used analytical methods to identify compounds. Quantitative assessment of narcotic substances requires high-precision techniques and the analytical methods that has global credibility.[1,2]

Methods are major part in the interpretation of the data. The most important opioids, which are derivatives of raw opium, are caffeine, amphetamine and ether, and methyl diphenylmethyl. The last compound possesses a very moderate psychological effect, which is a semi-industrial opioid and has many varieties, including oxycodone.[3,4]

Most types of various analytical techniques and methods used for the measurement and determination of narcotics were GC-MS, HPLC. GC-MS and HPLC are practically and technically deemed as the most common techniques used to determine the presence of narcotic substances, despite the various techniques used to obtain such determination.[5,6]

A hyphenated technique, GC-MS specifically, standardizes the separation power and sensitivity of a GC with the analyte