

Chemical analytical methods for diagnosing three narcotic substances in opiate neural drugs

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Abstract

Introduction: The study included the development of a new high sensitivity method in the measurement of different pharmaceutical drug samples. The high-performance liquid chromatography (HPLC)-UV detector was tested, and three narcotic components were tested in pharmaceutical tablets. The analysis used in the detection and qualitative evaluation of narcotic substances includes three phases of internationally approved measurements to confirm the validity of the results obtained. **Materials and Methods:** The first step is to use local color detectors under the light microscope and use a detector (20% $\text{HC}_2\text{H}_3\text{O}_2$ and platinum chloride). This reagent reacts with the drug molecule and gives a specific color to this molecule that can be detected clearly under the optical microscope with a magnification of 200 megapixels and compared with standard images of these materials. HPLC-UV system with Ion Pac column; Arcus EP-C18; 5 μm , 4.6 \times 250 mm, with a flow rate of 1.2 ml/min at 25°C and maximum wavelength 275 nm where the number of samples is isolated and determination of type the narcotics in mixture. The third step in the diagnosis involved the use of the mass spectrometry (MS) of each material in the mixture using the gas chromatography (GC)-MS (MSDCHEM\1\METHODS\MUAFAQ.M) to identify negative M/Z ions at the range temperature (70–375°C). **Results:** The spots color tests revealed the nature of the drug compounds in the pharmaceutical product. The images and the morphology were compared with pictures of similar standard models for the purpose of inference. The HPLC revealed that the number of peaks in this method is three peaks that clearly indicate the number of substances in the mixture. The third detection was carried out using GC. The separation of the GC was done to identify the molecular masses of each component in the sample. **Conclusion:** The results of the microscopic analysis showed the appearance of three forms of narcotic compounds under study that closely resembles the standard images of the compounds themselves. Analysis of HPLC showed three clear peaks of compounds in this combination. Analysis of GC-Ms showed the molecular clusters of three compounds in pharmaceutical drug tablets. All the results of the analysis obtained indicate the accuracy and sensitivity of the method used in the analysis and measurement.

Key words: Codeine, morphine, pharmaceutical opium derivatives, thebenine

Highlights

- Diagnosis of three opium derivatives in a pharmaceutical product.
- Color changes of colored spots under the microscope are indicative of initial and fundamental detection.
- Qualitative detection using high-performance liquid chromatography technique for three components of opium derivatives in the pharmaceutical formulation.
- GC-Mass technique is important in determining the molecular mass of three opium derivatives.
- Retrospective values were calculated for a number of obtained results with a range of 90–97%.

INTRODUCTION

Opium in Latin: Opium is a narcotic substance extracted from the poppy plant and used for the manufacture of heroin. According to United Nations sources, Afghanistan is currently the primary source of opium.^[1]

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