Original Article

Journal of Forensic Chemistry and Toxicology
Volume 2 Number 1, January - June 2016
DOI: http://dx.doi.org/10.21088/jfct.2454.9363.2116.3

Detection and Identification of Chlorophenraminemaleate in Street Narcotic Stuff

Vinod Dhingra

Authors Affiliation: Senior Scientific Officer, State Forensic Science Laboratory, Sagar (M.P.)

Reprints Requests: Vinod Dhingra, Senior Scientific Officer, State Forensic Science Laboratory, MPSH 15A, Gopal Ganj, Sagar, Madhya Pradesh 470003

E-mail: vdhingraso@hotmail.com

Abstract

Detection and identification of diluents in common drugs samples is frequent and challenging task for forensic chemists. Appearance of new drugs or combination of new drugs and misuse/ abuse of drugs, used for medical purposes, not only has substantial and detrimental effect on the health and welfare of the people and also generates several serious sociological problems. The present work describes the detection and identification of uncommon diluent's Chlorophenraminemaleate in narcotic materials by chemical colour tests, thin layer chromatographic and U. V. spectroscopy.

Keywords: Chlorophenraminemaleate; CPM; TLC; U.V.

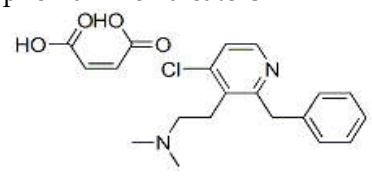
Introduction

Pure heroin is quite expensive and hence clandestine laboratories di acetylates either opium as such or crude morphine. The resultant product is brown in colour. This crude heroin is colloquially known as brown sugar, smack, gard etc. brown sugar is most widely abused drug. It contains heroin and other opium alkaloids like papaverine, narcotine, and acetyl codeine, acetyl morphine etc. and active adulterant like caffeine, methaqualone, phenobarbitone, diazepam, paracetamol etc. for prosecution under NDPS act 1985 only the identification of heroin in brown sugar is required.

The increase in frequency of narcotic drugs and number of addicts pose a maiming situation for law enforcement authority as well as the scientific staff involved. The ingenuity of the illicit street samples of drug produced by the clandestine laboratories are normally concoction mixture which require modern analytical techniques that are rapid and sensitive for the unambiguous identification of these drugs [1-4].

The present work describes the detection and identification of Chlorophenraminemaleate, in the exhibit confiscated from accused by chemical colour test, thin layer chromatography and U.V. spectroscopy.

Chlorophenraminemaleate [5] is (RS)-3-(4-chlorophenyl)-3-(2-pyridyl) pro pyl dimethylamine hydrogen maleate used as antihistaminic compound having molecular weight 390.87, m.p. 132-135°C white crystalline powder with molecular formula $C_{16}H_{19}N_2ClC_4H_40_4$ freely soluble in water, ethanol and chloroform the chemical structure of Chlorophenraminemaleate is



(I)

Brief Study of Case

Bhopal police arrested a person, which were engaged in taking illicit narcotic substance and seized several exhibits like cigarette foil, match box, paper packets along with brown powder a vial syringe with needle.

On medical examination doctor found several prick marks and blackish blue injuries along the cubical vein and its tributaries and the area thromboses on both hand upper cubical areas along with old wounds on legs and doctor opine that these self inflicted prick marks of injection on both cubical areas are consistent with history of drug abuse. Hence blood and urine preserved for forensic examination for chemical analysis in forensic science laboratory.

Materials and Methods [6-9]

All chemicals used were of AR grade dried and purified before use, double distilled water used as required for TLC the sample was dissolved in chloroform (about 1mg/ml). Control drug sample Chlorophenraminemaleate were purchased from local medical shop.

Thin Layer Chromatographic Analysis

A standard glass TLC plates was coated with slurry of silica gel G in water to a uniform thickness of 0.25 mm. heating in an oven at 110°C for about one hour activated the plate. An aliquots of standard Chlorophenraminemaleate and extract obtained were spotted on to the plate, which was developed with Cyclohexane: toluene: diethyl amine (75:15:10) in a pre saturated TLC chamber, to a height of 10 cm. The plate was removed from the chamber dried in air and sprayed by dragendroffs reagent at which gave orange coloured spots. The RF value of Chlorophenraminemaleate 0.35 can be compared with the obtained spots of extract. The RF value of Chlorophenraminemaleate in different solvent systems are given in following table

Table 1:

S. No.	Solvent system	Rf value
1.	Methanol/ Strong Ammonia (100:1.5)	0.45
2.	Acetone	0.30
3.	Chloroform/Methanol (90:10)	0.13
4.	Methanol	0.14
5.	Cyclohexane/Toluene/Diethylamine (75:15:10)	0.35

Colour Test

To a solution of Chlorophenraminemaleate add 3 ml of water and 1 ml of 10 M NaOH and extract with 5 ml ether 3 times. To 0.1 ml of the aqueous layer 10 mg resorcinol solution and 3ml of sulphuric acid is added and heated in water bath for 15 min the solution remains colourless. To the remainder of the aqueous layer when 2 ml of bromine solution is added and solution is heated on water bath for 15 minutes up to boiling and cooled when in this solution 10mg of resorcinol solution and 3 ml of sulphuric acid is added and heated in boiling water bath for 15 minutes it develops blue colour.

UV Spectroscopy

The UV spectra were taken as Shimadzu UV spectrophotometer model 2550. The extractives showed ë max in aqueous acid at 261nm and 266 nm tallied with the control sample.

Results and Discussion

The TLC experiments indicating the presence of diacetyl morphine along with another organic nitrogenous compound. The isolation and identification of drug by TLC technique, colour test and concordantly confirmed by U.V. spectral studies showed that drug were isolated. TLC coupled with U.V. spectroscopy between 200nm to 400nm provided a reliable quick method of detection and identification of Chlorophenraminemaleate drug used as anti allergic agent which is evident from recorded observation a sharp ë max in aqueous acid at 261nm and 266 nm in extracts tallied with standard sample, concluded that chlorphenaminmaleat drug. Such rapid resolution by TLC, colour tests and U.V. spectroscopy will undoubtly is of great value to the analytical chemist who may be confronted with the analysis of this drug in different materials referred in analysis of narcotic substances.

References

1. Nakamura G.R., J. Forens. Sci. 1962; 7:465-73.
2. Cooper, D.A. Microgram. 1978; 11: 88.
3. Saba, H.H., Microgram. 1989; 22(1): 8-9.
4. Oulton, S.R., Microgram. 1997; 30(12): 289-296.
5. Mertha, W. "The Merck Index: An encyclopedia of chemical and drugs" Merck and Co. Inc., U.S.A. 1976.
6. Clarke's isolation and identification of drugs, 2nd edition, edited by Mofat, A.C, 1986 published by the pharmaceutical press, London.
7. Feigl F. spot tests in organic analysis, Elsvier Amsterdam London, New York, Princeton (1956).
8. Working procedure manual toxicology B.P. R & D Govt. of India New Delhi.
9. Indian Phamacoepia, Published by controller of publication civil lines New Delhi. 1996.