

Illegal drugs

How to detect and identify illegal drugs?



Presumptive chemical tests



Treating with chemical reagents



Observe color changes

Detection & Identification

1 Marquis Test



Red-purple



Heroin



Orange-brown



Amphetamines

Detection & Identification

1 Marquis Test

2 Scott Test for cocaine



Cobalt thiocyanate turns blue

Detection & Identification

1 Marquis Test

2 Scott Test

3 Chromatography

4 Spectroscopy

DNA

Fingerprints

Fibre Analysis

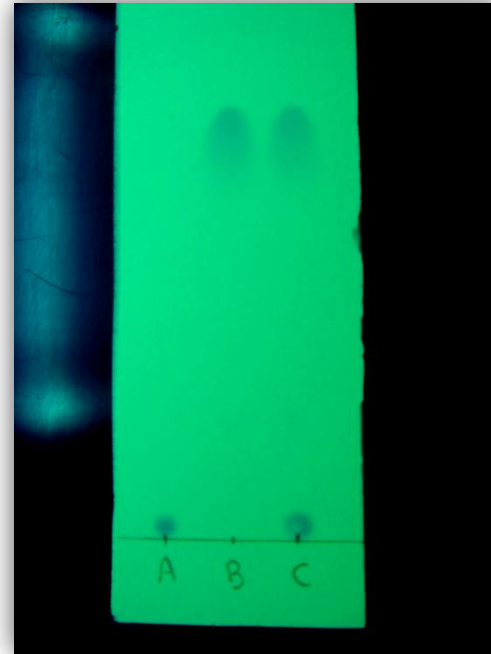
Poison

Blood

Thin Layer Chromatography

Not very precise

Presumptive test



TLC

Fingerprints

Fibre Analysis

Blood

Detection & Identification

Quantitative tests



GC & HPLC

Spectroscopic identification



IR fingerprint region

Hyphenated methods



GC-MS

Detection & Identification

Detection and identification
of a drug in a body fluid



Immunoassay

DNA

Fingerprints

Fibre Analysis

Poison

Blood

Immunoassay

Generation of antibodies to the drug

Binding of substrate to antibody



Chemically triggers a color change

Highly sensitive



Too sensitive?

Morphine

Immunoassays for detecting morphine in urine



Positive test



Heroin user

Produced by *papaver somniferum*

Almost all poppies produce morphine

Morphine

Other poppies produce it in tiny amounts

Poppy seeds used for flavoring foods



Trace amounts of morphine in body



Positive results for immunoassay test

Summary

1 Three types of illegal drugs



Natural



Morphine, cocaine, cannabis



Semi-synthetic



Heroin



Synthetic



Ketamine

Summary

1 Three types of illegal drugs



Natural; semi-synthetic; synthetic

2 Detection and determination of illegal drugs



Spectroscopy



Chromatography