
Concept of Presumptive and Confirmatory Test in Narcotics Cases.





RESEARCH CENTER, HIGH COURT OF BALOCHISTAN

COURT: MR. JUSTICE HON'BLE SHAUKAT ALI RAKHSHANI.

SUBJECT: CRIMINAL LAW, INTERNATIONAL LAW.

DATE: 7TH OCTOBER, 2024.

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QUERY: - What is the Jurisprudence of Presumptive and Confirmatory Test in conducting analysis of in Narcotics, controlled substances and other substance in narcotics Cases?

KEYWORDS:

Presumptive, Confirmatory Test, Protocols. UNODC, SWGDRUGs, Narcotics, Controlled Substance.

In order to answer the above quoted query, it is stated that the concepts of presumptive and confirmatory tests have not been defined in Our Jurisprudence. These pertain to forensic analysis of narcotic and other specified substances by government Analysts. A narcotics analysis consists of presumptive screening test and a confirmatory test. The concept of presumptive and confirmatory test has been discussed on the official website of Cumberland County Pennsylvania i.e., <https://www.cumberlandcountypa.gov/5157/Seized-Drugs> as below:

"Presumptive Tests

Presumptive tests are routinely performed using color tests. Color tests provide quick, presumptive screening of drug classes. Other presumptive tests performed in the laboratory consist of the use of instrumental techniques such as Gas Chromatography (GC) and Rapid Direct Analysis – Atmospheric Pressure Sample Analysis Probe Mass Spectrometry (RADIAN-ASAP MS).

Confirmatory Tests

Confirmatory tests provide structural and molecular information to make a conclusive identification of a controlled substance. Instrumental techniques used for confirmatory tests are Gas Chromatography/Mass Spectrometry (GC/MS) and Fourier Transform Infrared Spectroscopy (FTIR)"

The following Provisions/Sections 34, 35 and 36 of the Anti-Narcotics Act, 1997 **(The Act)** deal with Federal Government Analysts and reports to be submitted by them.

"34. Federal Narcotics Testing Laboratory, etc.– (1) The Federal Government may, as soon as may be after the commencement of this Act, set-up a Federal Narcotic Testing Laboratory and such other institutes and narcotics testing research laboratories or notify any other laboratory or institute to be a Federal Narcotics Testing Laboratory for carrying out the purposes of this Act.

(2) The Provincial Government may, wherever deems appropriate, set-up Provincial Narcotics Testing Laboratories.

35. Government Analyst.—The Federal Government or a Provincial Government may, by notification in the official Gazette, appoint such persons as it thinks fit, having the prescribed qualifications, to be Federal Government Analysts or, as the case may be, Provincial Government Analysts, for such areas and in respect of such narcotic drugs, psychotropic substances or controlled substances as may be specified in the notification.

36. Reports of Government Analysts.— (1) The Government Analyst to whom a sample of any narcotic drugs, psychotropic substance or controlled substance has been submitted for test and analysis shall deliver to the person submitting it, a signed report in quadruplicate in the prescribed form and forward one copy thereof to such authority as may be prescribed. (2) Notwithstanding anything contained in any other law for the time being in force, any document purporting to be a report signed by a Government Analyst shall be admissible as evidence of the facts stated therein without formal proof and such evidence shall, unless rebutted, be conclusive.”

Additionally, the Federal Government in exercise of powers under Section 77 of the Act read with Sections 35 and 36 thereof has framed, **“Control of Narcotic Substances (Government Analysts) Rules, 2001” (The Rules, 2001)**. The amended Rule 6 of the Rules, 2001 reads as below:

“6. Report of result of test or analysis.—(1) The Government Analyst to whom a sample of any narcotic drug, psychotropic substance or controlled substance has been submitted for test or analysis under section 36 of the Act shall deliver a signed report in quadruplicate of the Result of the test and analysis, while observing protocols of the tests or analysis applied, after keeping one copy in the record under sub-rule (2) of rule 5 and three copies of the report shall be supplied as early as possible to the sender of the samples for further distribution as follows:—

- (a) one copy of the report be placed in Police File;
- (b) one copy of the report be submitted in the Trial Court for production as evidence; and
- (c) one copy of the report be supplied to the accused through concerned court.

Explanation-I All four copies shall be treated as primary evidence.

Explanation-II It shall be deemed to be full and sufficient compliance with the requirement of the rule in respect of the supply of “full protocols of the tests or analysis applied”, If-

- (i) for pharmacopoeial drug or any substance, where the tests or methods of analysis prescribed in the official pharmacopoeia are followed, references to the specific tests or analysis in the pharmacopoeias are given in the report;
- (ii) for patent or proprietary medicines or any substance for which the tests and methods prescribed in any of the official pharmacopoeias are applicable and are followed, references to the specific tests or analysis in the pharmacopoeias are given in the report;
- (iii) for patent or proprietary medicines containing pharmacopoeial drugs for which the official tests or analysis or methods of assays are modified and applied, a description of the actual tests or, as the case may be analysis or methods of assays so applied is given in the report;

- (iv) *for patent or proprietary medicines or any substances for which non pharmacopoeial tests or methods of analysis are available or can be applied but for which tests or methods of analysis given in standard books or journals from which the test or methods or analysis have been adopted, is given in the report;*
 - (v) **for the narcotic drugs, psychotropic substances, controlled substances and any substance the name of test used at international level under the guidelines of Scientific Working Group On Drugs (SWGDRUGs), United Nations Office on Drugs (UNODC) or any other method of Analytical Chemistry;**
 - (vi) **for those narcotics drugs, psychotropic substances and controlled substances or any other substance for which methods of test are not available and have been evolved by the Government Analyst, a description of tests applied is given in the report;**
 - (vii) **for the test conducted by using techniques such as Mass Spectrometry, Infrared Spectrometry, Raman spectrometry and X-ray diffractometry (X-ray-D) etc. the name of test shall be mentioned; or**
 - (viii) **The Government Analysts to whom a sample of any drug, psychotropic substance or controlled substance has been submitted, will deliver its report within fifteen days or submission or samples;**
2. Any person being aggrieved on such report may within fifteen days of receipt thereof may make application of the Court for adducing evidence in contravention of the report.”;

The SCIENTIFIC WORKING GROUP FOR THE ANALYSIS OF SEIZED DRUGS (SWGDRUG) RECOMMENDATIONS in its Chapter viz, **Method of Analysis** deal with the analysis of narcotics and controlled and other substances. The relevant excerpt thereof is annexed as **Annexure-A**

Furthermore, the **United Nations Drug Control Program’s Recommended Methods for Detection and Assay of Heroin, Cannabinoids, Cocaine, Amphetamine, Methamphetamine and Ring-Substituted Amphetamine, Derivatives in Biological Specimen (MANUAL FOR NATIONAL LABORATORIES)** categorically enunciates for the detailed procedure and guidelines for analytical analysis. The Document provides for conducting presumptive/screening test as well as confirmatory test during the process of analysis of opium, methamphetamine, morphine, heroin etc. In narcotics cases, the government analyst’s report plays a crucial role in determining the presence of illegal substances. Courts have emphasized that reports must adhere to strict standards, including conducting **presumptive** and **confirmatory tests** to establish the presence and nature of the substance in question. Failure to comply with these standards can render the report invalid and insufficient for legal purposes.

The **SWGDRUG Recommendations**, provide comprehensive guidelines on forensic drug analysis, classify analytical techniques into three categories based on their level of selectivity: **Category A** (high selectivity), **Category B** (intermediate selectivity), and **Category C**.

A. Presumptive Tests

Presumptive tests are categorized under **Category C techniques**, which are designed to give preliminary or general information about the substance being tested.

These tests do not offer conclusive proof but are used to **screen and identify potential narcotic substances**. According to the SWGDRUG guidelines, presumptive tests include:

- **Color Tests:** These involve the addition of specific reagents to the substance, which results in color changes that suggest the presence of particular drug classes.
- **Fluorescence Spectroscopy:** This method measures the fluorescence emitted by substances when exposed to UV light, providing general indications of certain drug types.
- **Pharmaceutical Identifiers:** In cases involving pharmaceutical drugs, visual examination of tablets or capsules may provide initial identification, though this method is not suitable for confirming the identity due to the potential for counterfeit substances.

The purpose of these tests is to **rapidly screen substances** for further confirmatory testing. They allow analysts to narrow down the range of possible substances, thus saving time and resources in the analytical process. However, because of their limited selectivity, the results of presumptive tests must always be corroborated by confirmatory techniques to ensure scientific accuracy and legal reliability.

b. Confirmatory Tests

Forensic analysis of narcotics relies heavily on **Category A techniques**, which provide **high selectivity through structural information**. Confirmatory tests are vital in conclusively determining the chemical identity of the seized substance. As per the SWGDRUG guidelines, Category A techniques include:

Infrared Spectroscopy (IR): This method provides a detailed molecular fingerprint of the substance, allowing analysts to determine its exact chemical structure by examining how it absorbs infrared light

Mass Spectrometry (MS): Mass spectrometry involves ionizing the substance and analyzing the mass-to-charge ratio of its ions, which gives a precise identification of the chemical composition. This technique is highly regarded for its specificity and accuracy.

Nuclear Magnetic Resonance (NMR) Spectroscopy: NMR provides information about the molecular structure by measuring how atomic nuclei respond to magnetic fields. Though not as commonly used as IR or MS in routine narcotics analysis, it remains a powerful confirmatory technique.

Raman Spectroscopy: Similar to infrared spectroscopy, this technique involves measuring how light scatters as it interacts with the substance's molecular structure.

The purpose of confirmatory tests is to **provide a scientifically supported conclusion** regarding the identity of the substance in question. These methods are critical because they **offer conclusive evidence that can withstand legal scrutiny**, particularly in criminal cases involving narcotics, where the identity of the substance must be proven beyond doubt.

Analytical Scheme and Combination of Techniques

The SWGDRUG guidelines further emphasize that **an appropriate combination of techniques** must be used in the analytical scheme to ensure the reliability of the results. A presumptive test alone is insufficient for identification purposes; therefore, when a **Category A** technique is used, at least one other technique (either from **Category A, B, or C**) should be applied to support the identification. When a **Category A** technique is not

available, at least **three separate techniques** must be employed, with two coming from **Category B**, to provide a sufficient level of selectivity. This approach is designed to **eliminate false positives** and **minimize the potential for error** in the analytical process.

According to the **United Nations International Drug Control Programme's** guidelines, which provide internationally recognized methodologies for drug detection, **presumptive** and **confirmative** tests serve distinct purposes and are foundational to the legal determination of narcotic substances.

a. Presumptive Tests

Presumptive tests are generally the first step in the analysis process. These tests are typically **screening methods** designed to quickly identify whether a sample contains substances that might be narcotics. They include immunoassay techniques such as:

1. **Radioimmunoassay (RIA)**
2. **Enzyme immunoassay (EIA)**
3. **Fluorescence Polarization Immunoassay (FPIA)**
4. **Latex Agglutination Inhibition (LAI)**

These tests help eliminate negative samples early in the process and identify samples requiring further examination. However, due to the potential for **cross-reactivity**, presumptive tests are not sufficient on their own for legal proceedings

b. Confirmatory Tests

Confirmatory tests provide the higher specificity and accuracy required for legal proceedings. The recommended confirmatory methods are typically **chromatographic techniques**, such as:

1. **Gas Chromatography (GC)**
2. **High-Performance Liquid Chromatography (HPLC)**
3. **Gas Chromatography-Mass Spectrometry (GC/MS)**

These methods work by separating and identifying the chemical compounds in a sample and are more likely to withstand legal scrutiny due to their specificity. Among these, GC/MS is considered the **most sensitive and reliable** for confirmatory testing.

c. Detailed Procedure

The proper collection, labeling, and chain-of-custody are essential for maintaining the integrity of the sample, as **adulteration or contamination** can compromise the test results. According to these guidelines, the confirmatory tests are more than just an extra step; they are mandatory to ensure **reliability** and **precision** in narcotics detection.

d. Purpose of These Tests

The requirement for both presumptive and confirmatory tests serves a critical role in ensuring the **validity of the government analyst's report**. The **presumptive test** acts as an initial filter, while the **confirmatory test** provides the **conclusive evidence**

necessary to meet legal thresholds for conviction. These protocols aim to **ensure Accuracy**: By conducting two stages of testing, the likelihood of false positives or negatives is minimized; **Legal Reliability**: Courts rely on the rigorous application of these tests to ensure that the analyst's report can withstand legal scrutiny and **Protection of Rights**: Strict adherence to the testing procedures ensures that individuals are not wrongfully convicted based on incomplete or inaccurate reports. The document is annexed as **Annexure-B**.

Case Laws:

In **Nishat Ahmad v. The State (2020 YLR 2010)**, the court emphasized the necessity of conducting both **presumptive** and **confirmatory tests** as per Rule 6 of the **Control of Narcotic Substances (Government Analysts) Rules, 2001**. The Court observed that:

1. *"A perusal of report of the Punjab Forensic Science Agency, Lahore (Exh.PD) further reveals that no Gas Chromatography- Mass Spectrometry was used for confirmation of the presumptive tests performed on the received items. Only Chemical Spot Tests were used for Presumptive Testing. Presumptive tests, also known as preliminary tests or field tests, allow drugs to be quickly classified into a particular chemical group, but do not unequivocally identify the presence of a specific chemical compound. It is the Confirmatory Test which conclusively establishes the identity of a controlled substance. In this case no Confirmatory Tests were performed on the received items by the Punjab Forensic Science Agency, Lahore. Gas chromatography-mass spectrometry (GC-MS) is an analytical method that combines the features of gas-chromatography and mass spectrometry to identify different substances within a test sample. Gas chromatography-mass spectrometry (GC-MS) has been regarded as a "gold standard" for forensic substance identification because it is used to perform a 100% specific test, which positively identifies the presence of a particular substance. The Gas chromatography-mass spectrometry (GC-MS) is composed of two major building blocks: the gas chromatograph and the mass spectrometer. The gas chromatograph utilizes a capillary column which depends on the column's dimensions (length, diameter, film thickness) as well as the phase properties (e.g. 5% phenylpolysiloxane). The difference in the chemical properties between different molecules in a mixture and their relative affinity for the stationary phase of the column will promote separation of the molecules as the sample travels the length of the column. The molecules are retained by the column and then elute (come off) from the column at different times (called the retention time), and this allows the mass spectrometer downstream to capture, ionize, accelerate, deflect, and detect the ionized molecules separately. The mass spectrometer does this by breaking each molecule into ionized fragments and detecting these fragments using their mass-to-charge ratio. The final steps of the process involve ion detection and analysis, with compound peaks appearing as a function of their m/z ratios. Peak heights, meanwhile, are proportional to the quantity of the corresponding compound. A complex sample will produce several different peaks, and the final readout will be a mass spectrum. Using computer libraries of mass spectra for different compounds, researchers can identify and quantitate unknown compounds and analytes. In absence of such confirmation by the use of Gas Chromatography-Mass Spectrometry, no reliance can be placed on the report of Punjab Forensic Science Agency, Lahore (Exh.PD)."*

2. The Honorable Supreme Court of Pakistan in case titled The STATE through Regional Director ANF---Appellant/Petitioner Versus IMAM BAKHSH and others---Respondents **2018 S C M R 2039** while recognizing the above quoted international guidelines passed the following directions:

“Directions to the Federal and Provincial Governments

19. Efficient, credible and proficient Narcotics Testing Laboratories are integral for successful execution of the Act and the Rules. The said laboratories have to be manned by competent analysts having prescribed qualifications. Rule 3 provides for the qualifications of a Government Analyst and it has already been held to be a mandatory provision by this Court. Further, the obligations of the Government Analysts under these Rules must be complied with for ensuring accurate and meaningful chemical analysis. **In order to standardize the Narcotics Testing Laboratories across the country, the protocols and tests applied by these laboratories must meet common international standards, e.g. Guidelines issued by the United Nations Office on Drugs and Crime (UNODC) or Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG) or the International Organization for Standardization (ISO) - 17025:2017.** We, therefore, direct the Federal Government and the respective Provincial Governments to ensure that the Government Analysts in the Narcotics Testing Laboratories are qualified as per Rule 3, the tests and their protocols are common across the country are as per International guidelines. The officials of the National and Provincial Narcotics Testing Laboratories shall follow the Rules in the best manner possible so that efficient and meaningful chemical analysis can be achieved. In case of failure, disciplinary action be taken against the officials, in accordance with law.”

2. the Hon’able High Court of Balochistan in the case of Muhammad Faisal Vs. The State reported as **LEX/HBPK/2885/2023** Manupatra official site discussed the mandatory conducting of presumptive and confirmatory test in the following manner:

“11. Likewise, the United National Organization on Drugs and Crimes (UNODC) guidelines provides two kinds of tests of the materials viz 'presumptive test and confirmative test' and the presumptive test be mentioned before endorsing/opinion upon the confirmative test, while result of both the tests be mentioned separately. In the case in hand, the reports of chemical examiner i.e. Ex.P/4-D to Ex.P/4-G does not carry separate result of each test applied rather the reports contain that "a. After presumptive & confirmative tests, results of the test are positive. b. As per test protocol the submitted sample is identified as "Hashish Pukhta". The reports in absence of applying both presumptive and confirmative tests and without applying the guidelines as provided by the Hon'ble Supreme Court in case supra cannot be termed to be in consonance of the guideline provided therein. Such, defective reports are customarily observed in cases, wherein recovery of narcotics is alleged to have been recovered. It also appears from perusal of Government Analysis Reports that two tests are performed by the Federal Narcotics Testing Laboratory Balochistan Quetta i.e. Fast Blue B Salt Test and Thin Layer Chromatograph (TLC) Test. The Federal Narcotics Testing Laboratory Balochistan has considered the Thin Layer Chromatography Test as confirmative test, which is in contravention of UNODC recommendations. As per UNODC Manual i.e. Recommended Method for

the Identification and Analysis of Synthetic Cathinones in Sized Materials, 2015 (clause 4.6) TLC is mere a presumptive test. The relevant clause is reproduced herein below:

"4.6 Thin Layer Chromatography (TLC)

TLC is a common used technique for the separation and identification of illicitly used drugs. It is inexpensive, rapid, sensitive and flexible in the selection of both the stationary and mobile phase and amendable to a wide variety of substances, in base and sale form, ranging from the most polar to non-polar materials. A retention factor (Rf) can be calculated for each compound within a sample to provide a tentative discrimination of compounds within a drug class. Distance from origin to sample spot Rf Value = -----

Distance from origin to solvent front TLC is frequently used in the analysis of illicitly used drugs, as it is cheap, easy to use, gives a certain degree of specificity and is capable of simultaneous drug detection. As with presumptive test, however, TLC is not considered a confirmatory test and is only used as a screening method. In 1990, Lehmann et al. [35] proposed a method to identify cathinone from that and this was corroborated by Lee in 1995 [36]."

12. It is observed with grave concern that this Court persistently directed the Government analyst/examiner, as apparent from an unreported judgment of this Court, passed in Criminal Appeal No.629 of 2021, dated 31st October, 2022, authored by his Lordship, Justice Muhammad Kamran Khan Mulakhail, to remain careful and to follow the guidelines postulated by the Hon'ble Supreme Court and the procedure given in the UNODC guidelines and apply both the test of presumptive and confirmative, as without applying both the tests, any report or opinion rendered therein cannot be considered to be unambiguous and supportive to the prosecution case and in this respect a specimen report in tabulated form was also given to be followed strictly, but for the reasons best known to him/them, no heed is being paid, which is unconscionable."

4. The Hon'able High Court of Balochistan in the case of **Muhammad Hanif Vs. The State** reported as **LEX/HBPK/0955/2023** discussed the concept of presumptive and confirmatory tests in light of Protocols settled by UNODC. The judgement also discussed a proforma for conducting such cases:

"12. Likewise, the United National Organization on Drugs and Crimes (UNODC) guidelines provide two kinds of tests of the materials viz 'presumptive test and confirmative test' and the presumptive test be mentioned before endorsing/opinion upon the confirmative test, while result of both the tests be mentioned separately. In the instant case, the reports prepared by the Government Analyst, Federal Narcotics Testing Laboratory Balochistan Quetta Ex.P/5-G to Ex.P/5-KK does not carry separate result of each test applied rather the report contains that "a. After presumptive & confirmative tests, results of the test are positive. b. As per test protocol the submitted sample is identified a "Hashish Garda". The report in absence of applying both presumptive and confirmative tests and without applying the guidelines as provided by the Hon'ble Supreme Court in case supra cannot be termed to be in consonance of the guideline provided therein. Such, defective reports are customarily observed in cases, wherein recovery of narcotics is alleged to have been recovered. The

government analyst/examiner is required to follow the guidelines postulated by the Hon'ble Supreme Court and the procedure given in the UNODC guidelines and apply both the test of presumptive and confirmative and without applying both the tests, any report or opinion rendered therein cannot be considered to be unambiguous and supportive to the prosecution case. Therefore, for ease of reference and to observe care and caution in future, for rendering the report, following specimen of the report shall necessarily be adopted, which is reproduced herein below:

Test Applied	Protocols (Applied to carry out the test)	Result of Test(s)
<i>Presumptive Test</i>	<i>In case of examination of any narcotics substances, the relevant presumptive test(s) be mentioned separately and thereafter the confirmative test be conducted</i>	
<i>Confirmatory Test</i>		

(The End)