ISSN 2456-3110
Vol 9 · Issue 4
April 2024

JAiMS
INTERNATIONAL

Journal of Ayurveda and Integrated Medical Sciences

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences

Maharshi Charaka
Ayurveda

Indexed

Journal of
Ayurveda and Integrated Medical Sciences
ISSN 2456-3110
REVIEW ARTICLE April 2024

Literature review about Forensic Toxicology and Poisoning

Ammar Boriwala[1], Mayuri Hankare[2]

[1]*Final Year Post Graduate Scholar, Dept. of Agad Tantra, Dr. D. Y. Patil College of Ayurved and Research Centre (Deemed to be University), Pimpri, Pune, Maharashtra, India.*

[2]*Associate Professor, Dept. of Agad Tantra, Dr. D. Y. Patil College of Ayurved and Research Centre (Deemed to be University), Pimpri, Pune, Maharashtra, India.*

ABSTRACT

The field of toxicology is the research and investigation of the properties, processes fatalities, effective dosage, recognition, evaluation, and deductive reasoning of the results of toxicological tests, in addition to the handling of poisons. Forensic toxicology focuses on the therapeutic and juridical consequences of contaminants' harmful effects on people. If a material penetrates into the human body or comes into contact with any portion of it, regardless of whether it is solid, liquid, or gaseous, it is deemed toxic. The local the surroundings, the body's structure, or both may have an impact on poisoning. Because even compounds that seem safe in little quantities can become lethal when taken in large quantities, and because toxins generated through bacteria aren't typically regarded as toxic substances, the concept of poison comes with an imprecise and inappropriate definition. Based on a forensic perspective, it is crucial to understand that there are two approaches taken in the criminal investigation of the poisoning case. In the first case, it's crucial to ascertain the kind of damage caused and the poison's consequences; in the second, on the other hand, it's critical to locate the perpetrator and ascertain their reasons. Poisoning may sometimes result in death, but it can also have long-term health implications on the victim. This suggests that law enforcement investigations into contamination are a very complex procedure involving experts spanning multiple disciplines.

Key words: *Toxicology, Forensic, Ailments, Hazardous, Poison, Legal Toxicology, Poisonous Venom, Carcinogen, Legal Toxicology, Scene of Crime.*

INTRODUCTION

The study of toxicology focuses on the characteristics, mechanisms, lethality, lethal dosage, identification, assessment, and deductive reasoning of toxicological test findings as well as the management of poisons. The legal and medical implications of the detrimental effects of pollutants on humans are the focus of forensic toxicology.[1-3] A material of any kind (solid, liquid, or gaseous) is considered poisonous if it enters the body or comes into collision with any part of it. Poisoning can occur due to effects on the structure of the body, the local environment, or both. The term "Poison" has an ambiguous and inadequate definition because even substances that are safe in small amounts can become deadly when consumed in massive quantities, and the toxins produced by bacteria are not typically considered toxic substances. Clinical toxicology research is the study of health conditions in humans brought on by or linked to unusual chemical exposure. The term "toxicology" describes the study of toxins that are harmful to humans and are produced by living things, such as bacterial and fungal toxins, noxious plants, and the poisonous venom of snakes, spiders, and bees.[4-7]

From a forensic standpoint, it is important to recognize that the criminal probe is carried out in two ways with

Address for correspondence:
Dr. Ammar Boriwala
Final Year Post Graduate Scholar, Dept. of Agad Tantra, Dr. D. Y. Patil College of Ayurved and Research Centre (Deemed to be University), Pimpri, Pune, Maharashtra, India.
E-mail: ammarboriwala1994@gmail.com

Submission Date: 13/02/2024 Accepted Date: 21/03/2024

Access this article online

Quick Response Code

Website: www.jaims.in

DOI: 10.21760/jaims.9.4.28

ISSN: 2456-3110 REVIEW ARTICLE April 2024

regard to the poisoning crime. In the first instance, it's important to determine the type of harm done and the effects of the poison, and in the second, it's important to identify the offender and determine their motivations. Although poisoning occasionally ends in death, those who are poisoned may experience long-term health effects. This indicates that the criminal inquiries into contaminating are a highly intricate process that includes specialists from various fields. Anyone who is a poisoning victim who survives must seek medical attention; the course of treatment will depend on the extent of the way life damage. The length of time it takes for the living creature to recover will depend on how damaged it is.[8-13]

Aim and Objective

1. To completely explain the subject of toxicology and forensics
2. To tell and describe new things in the subject context.
3. Summarizing the details of various books of forensic and toxicology.

Materials and Methods

1. Textual analysis is out by gathering information from much toxicological and forensic literature.
2. Previous work done.
3. The entire study is built around an overview of the literature drawn from works on forensic and toxicology.

Discrepancy[14-17]

The subsequent circumstances must raise the possibility of poisoning.

1. The symptoms strike someone who's healthy out of the blue.
2. The indications start to show up right away or shortly after consuming food or liquids.
3. The manifestations have a consistent nature and intensify quickly.
4. When multiple people consume the same poisoned food or beverage at the identical moment, they all experience comparable symptoms at or around the same time.
5. The presence of poison in consumed food, vomit, or waste products is conclusive evidence of poisoning.

Ailments[18-22]

The following sets of symptoms point to a possible poisoning.

1. Abdominal pain that comes on suddenly, along with nausea, vomiting, diarrhea, and collapse.
2. An abrupt coma that causes pupil constriction.
3. The abrupt onset of seizures.
4. Dilation of the pupils in drowsiness
5. The condition of paralysis particularly of the plantar motor neuron variety.
6. Liver-specific failure and jaundice.
7. Oliguria combined with hemorrhages and protein excretion.
8. Cyanosis that persists.
9. Quick onset of alimentary or neurological ailments in people who have a history of chemical exposure at work.

Hazardous[23-25]

The term poison is defined differently by different people. As we previously know, a poison refers to anything that injures or kills. As previously mentioned, almost anything can be poisonous if consumed in excess. The fundamental idea of toxicology is this one. The key to figuring out the way being exposed to a chemical will affect you is the amount taken. There are undoubtedly statistical variations in the toxic potential of different ingredients. Aspirin is less toxic than cyanide, but aspirin in excess can be deadly. We can determine the general security or hazardousness of specific compounds based on their potency as corrodes and on how dangerous they are. Furthermore, someone's susceptibility to a variety of drugs and poisons varies greatly, based on factors such as individual metabolic processes, background genetics,

ISSN: 2456-3110 REVIEW ARTICLE April 2024

length of use, and underlying health issues. Something that kills one individual might pose far less risk to another over time.

Why is a poison such a lethal and effective tool for murder? A poison that can be used as an instrument of warfare must be sufficiently toxic in small doses to be lethal; it's got to be easily concealed (in food or water); if taken orally, it must be easy to mask the taste or odor; it must produce delayed, inconsistent symptoms or seem like an innate illness; and lastly, it must be easily obtained and relatively simple to handle. Poisons and drugs have an exclusive spot among the murderous individuals. The kind of agent, the dosage, the timing of the representative's entry into the victim's body, the agent's the pharmaceutical and pharmaco- dynamic characteristics, etc. all play a part. Poisoning frequently happens gradually, so death happens sooner or later. This poisoning is ongoing. This improves the simulation of the clinical depiction of a genuine disease. The aforementioned substances can be used overtly and transparently, sometimes by coercion or threats, but they can also be used subtly and sneakily, like by adding them to a favorite food or substituting poison for a prescription medication, among other ways. When food is added, bad flavors and scents are killed," especially when strong-flavored spices are used.

Carcinogens[26-31]

There is no doubt that corrodes and poisoners date back to prehistoric times. There are recognized meanings for toxins and poisoning, despite the fact that the concepts are not easily understood. Definitions can also help us comprehend toxic substances. There is no doubt that a wide variety of poisons have been used in homicides both historically and currently. These include drugs, poisons derived from plants, animals, and bacteria, as well as "different drugs" like antifreeze. It is difficult to regulate the use of contaminates and to detect them because of their diversity and the commonplace nature of several poisons, like salt and freezing liquid. For instance, some poisons are harder to identify because they have no taste or smell.

The numerous ways that chemicals can act on the human system, which includes by emulating certain illnesses and ailments, and the means by which they can be managed expand a poisoner's options. Because of the nature of poisoning, it may not even be evident that a crime has been committed, unlike other types of homicide. However, by methodically taking into account poisons and their properties, modes of action, predicted lethal doses, and methods of treating poisoning, these complications can be minimized. Recognizing the differences within both acute and long-term poisoning may help us comprehend the intentions of those who perpetrate poisoning. According to trends, narcotics are now more frequently found in poison those impacted than poisons like cyanide and arsenic were in previous centuries. Intention to commit a crime and enthusiasm are two different things. Encouragement refers to the reason(s) behind a poisoning offender's would like, which may have to do with unmet behavioral requirements that the offender is unaware of.

A commitment to execute out the deed is referred to as intent is received. Finding evidence of intent can be accomplished in a number of ways, but the best place from which to begin is for the officer in charge of investigation to remain impartial and refrain from making snap decisions when speaking with observes and performing searches. Proving the suspect knew beforehand that an asset was potentially deadly is one way to prove intent. Audience members occasionally provide this evidence, recalling that perpetrator's sinister remarks. Or it might be discovered in poisoning books that the offender downloaded or viewed online. When obtaining poisons covertly, suspects accidentally give away who they are or attempt to hide their identity, which is a dead giveaway of guilty expertise. The researchers can ascertain the number of victims that an individual has poisoned and the potential locations for proof regarding these crimes by determining the motive behind the poisoning. Comprehending the motivations behind a criminal's behavior can aid law enforcement in devising investigative tactics and directing the pursuit of pertinent evidence. When determining the manner in

ISSN: 2456-3110 REVIEW ARTICLE April 2024

which to make their arguments in court, authorities may refer to this content. Investigators need to exercise caution when making snap decisions regarding enthusiasm. Even when the motive for an illness seems clear, further research is necessary to determine the real reason or reasons why the act in question was committed in the first place. When a suspect provides an explanation for their motivation, law enforcement should exercise caution because this could be an effort to divert attention from the ongoing inquiry.

Scene of Crime[32-34]

Despite the fact that it may seem obvious, crime scenes are present wherever crimes are committed. More often than not, an expert private investigator will come across instances where an attack or in terms of money noteworthy theft has taken place. This could be at the residence or place of employment of the person offering harming hate mail or emails, or it might experience be at the place of employment of the "furnace accommodate" phone calls fraudulent artist.

Five general categories can be used to categorize crime scene investigations:

1. Effectiveness and security
2. Recording and gathering evidence
3. Holding, separating, and questioning investigators, individuals, or those already in custody
4. Seeking more witnesses
5. Leaving

The previous cases make it abundantly evident that the site of the crime needs to be perceived. The scene needs to be secured, the tangible evidence found and gathered, and the crime restored after its location and limits have been established. The query as to whether there had been any particular sites or those involved would not have arisen if the proper protocol had been followed in the capture investigation - boundaries that were defined, safeguarded, and everything that happened inside them was recorded. Guaranteeing that restrictions were accurately safeguards in this instance would have required fencing it off as long as natural light, at which point the hurried seeking in the pitch darkness produced scant results. It always entails cutting out reporters, public servants, and even senior police officers who aren't actively engaged on the case, in addition to curious bystanders and locals. Any investigation into an ambush should focus on determining the perpetrator's hiding place and documenting any events that took place there. It can then be examined for additional material proof, like used ammunition, containerized food, or abandoned tobacco products and matches. After a thorough search the following morning, spending time shell the exterior (from a 30.06 gun) that was originally missed in this intercept was found.

The material proof that an offender brings to the crime scene includes tools used in burglaries that allow them to get into the location or a safe; a firearm used in robberies or homicides to harass, beatings, or kill; a receptacle of inflammable. Fluid in arson cases; and in cases involving gadgets, hard disks or text messages from an electronic device. Someone who commits an offense may unintentionally leave hand prints, instruments marks, shoe impressions, blood-spatter structures, spent ammunition, and fired cartridge of ammunition casings in front of (in situ) when committing a crime. Intangible evidence may be gathered by a detective through interviewing and observing while looking for the place of the crime (and afterwards). An evaluation of feedback such as overbearing stabbings, fractured skeletons, amputations, or the type and selection of destructive firearm used can reveal the psychological considerations that contribute to the planning and execution of a homicide. These factors are examples of not material evidence. An astute evaluation of immaterial evidence, such as cognitive establishing a profile can lead to potential offenders. Developing not tangible confirmation is another application for interviewing to conduct the Reports regarding the syntax used during the perpetration of an offense may come from observes or assaulted. In what precise manner did the thief express his desires and calls for? What was said by the perpetrator prior to, during, and following the violence? Such orders and remarks have

ISSN: 2456-3110 REVIEW ARTICLE April 2024

detectives and legal importance because they are components of the offender's method of operation.

Proof [35-52]

Any field of study that is officially presented to a panel or fact-finder (determines or judges) with the intent of proving or disproving a particular fact is referred to as documentation. Practically speaking, the circumstances and the individual who did it are the two primary issues that need to be addressed in the course of a criminal investigation. In order to respond to such inquiries with an acceptable amount of assurance in the end, many specifics must be inferred; however, whatever that helps the person conducting the investigation and the fact-finder in turn can be regarded as documentary proof. Of certainly, the term just about anything is extremely broad, but as we shall see, supporting evidence" refers to a wide variety of items, data, and data collection. One of four categories can be used to classify testimony: endorsement, documentaries, illustrative or physical. The data gathered from questioning and conducting interviews people pertaining to what they heard (oral testimony evidence), saw (eyewitness evidence), or knew (integrity evidence) is known as evidence based on testimony. Written documents, audio files, and photography are frequently used as proof of existence. Simulations and realistic representations of locations or items connected to the wreckage are an example of indicative evidence that aids juries in seeing things more clearly that the accused was unable to see firsthand.

However, if the presiding judge feels that it is essential to the impartial handling of the case, juries are sometimes allowed to go to the exact location of the crime to investigate; however, this comes at a cost and takes time. The researchers typically work with evidence that is tangible.

Legal Toxicology[53-57]

The field of forensic toxicology deals with the detection and measurement of drugs and other corrodes or toxins in bodily fluids, such as blood. The method of qualitative evaluation tests are defined as having two possible results: positive, which indicates the presence of the drug or toxin, or negative, which indicates the absence of the drug or toxin. The tests are referred to as quantifiable when they identify particular drug or toxin concentrations. Two distinct approaches are needed for the results to have criminal relevance: a preliminary examination and a conclusive (quantitative) test. Some toxicology research labs also perform drug classification work. The application of numerous scientific disciplines to the criminal justice system is known as forensics. This could be related to civil lawsuits or illicit conduct. The branch of forensics known as forensic toxicology uses toxicology concepts for legal purposes. Autopsy toxicology, performance-based toxicology, and a forensic investigation drug testing are its three main subcategories. In the past, mortuary examinations were the sole cases that toxicologists with forensic expertise handled; however, in the present day, they handle a wide range of cases. A court of law must be able to scrutinize the toxicologist's work and opinions. It is possible to present reports and conclusions as proof, and the doctor of toxicology is frequently called upon to give testimony. A toxicologist who works in forensic toxicology must take into account every facet of an inquiry, including any potential symptoms, evidence discovered at the actual location of a crime, or any pertinent details pertaining to the case's past. The forensic toxicologist uses this information, along with measurements for investigation, to identify potential poisonous substances related to the particular incident and their levels of concentration.

Next, he or she needs to determine the likely significance of the illegal substance or chemical in the case. Every application of poisonous science and research to the resolution of legal disputes falls under the umbrella term forensic toxicology. The topic is typically connected to work in the fields of criminal the judiciary, police departments, and coroners. Though these are typically related to civil proceedings rather than the criminal justice system, other aspects of forensic toxicology include the examination and identification of medications as well as the upholding of farming, manufacturing, and healthcare laws (to make certain clean air, uncontaminated water, and

ISSN: 2456-3110 REVIEW ARTICLE April 2024

safe nourishment supplies). Similar to forensic toxicologists in criminal matters, analysts working in these civil domains may occasionally find that their work is the focus of considerable media attention in legal proceedings. And the other side ought to be conscious of each other individuals' methodology's advantages and disadvantages. Instances of inadvertent self-harm and suicidal ideation are typically handled by hospital biochemists or clinical toxicologists, who may collaborate with emergency poisoning centers. A small percentage of these cases are referred to a criminal toxicologist, either due to a coroner's an inquest being called for or an accusation of intentional poisoning. The detection and comprehension of poisons, the physiological impacts on individuals and animals, and the development of counter-measures are the areas of focus for toxicologists. The amount and type of toxicological encouragement that crime research centers can offer varies greatly, but they typically offer some. However, an assortment of hospital, coroner, health-related examiner, and criminal justice research facilities always provides complete toxicological encouragement. Police can be directed to nearby establishments by laboratory personnel. The unchecked use of illegal substances has evolved into a global issue impacting all facets of society, and this has given the toxicologist's job even more importance. Pharmaceuticals and poisons in fluids from the body, tissues, and organs are found and identified by toxicologists. In addition to legal settings like crime labs and medical investigator offices, medical center laboratories—where the ability to identify a drug overdose could mean the distinction between life and passing away—while other healthcare facilities in charge of keeping an eye on drug and other harmful substances intake also need to use their services. Primary instances include testing young ones exposed to lead paints with examinations of blood or examining the urine samples of addicts participating in methadone-based maintenance applications.

Checking

Forensic labs employ a variety of analytical techniques, but the majority combines chromatographic and immune-assay techniques to detect and measure narcotics and toxic substances. The method of gas chromatography is frequently used in forensic labs to analyze alcoholic beverages. As a first or evaluation test, enzymes and colorimetric techniques are on occasion employed. Spectrophotometric distinctions between oxygen hemoglobin minimized hemoglobin, Meta hemoglobin, and carbohydrates into haemoglobin can be used to test for carbon monoxide in the environment. Gas chromatography, diffusion, and colorimetric methods are further methods used for carbon monoxide analysis. Colorimetric measuring and diffusion are the two methods used to test for cyanide. Blood as well as urine specimens can be screened for a wide range of pharmaceuticals and drug classes using immune-assay testing. immune-assay testing is used to detect substances such as its metabolites of cocaine, benzodiazepines, pheta-mines, pharmaceuticals such as barb and opioids. For the qualitative evaluation and statistical evaluation of the samples for harmful substances, chromatographic processes like thin-film chromatography (TLC), gases chromatography (GC), high performance liquid chromatography (HPLC), and the chromatography interfaced with mass spectrometry techniques (GC/MS, GC/MS/MS, LC/MS, LC/MS/MS) are utilized. The method of atomic absorption spectrophotometry can be used to analyze samples of arsenic, mercury, cadmium, lead, and other heavy metals for heavy metal poisoning. The approaches and techniques used for evaluating material must be validated to guarantee the exactitude, precision, and applicability of the method in order for the results of toxicological testing to be considered scientifically valid. Determining lower and upper extraction limits as well as detection limits are part of the process. The certification test approach assesses carryover from previous experiments with samples in order to detect potential harmful substances. The toxicologist working in forensic science needs to be capable of assessing the process' efficacy and comprehend the significance of validation. The medico-legal situations of both criminal and civil cases require assistance of results obtained through legitimate scientific techniques.

ISSN: 2456-3110 **REVIEW ARTICLE** April 2024

Conclusion

Throughout the course of a probe, forensic scientists gather, preserve, and evaluate scientific evidence. While certain forensic experts visit the location of the crime to gather evidence firsthand, others assume a scientific role and conduct analyses on cases that are referred to them by third parties. Forensic scientists demonstrate as witnesses for expertise during criminal and civil lawsuits, and they may appear for the side of the prosecution or opposing side, aside from to their testing duties. While any area could theoretically be considered forensic, most in law enforcement related cases are now covered by specific sections that have developed over time.

References

1. Parikh, Textbook Of Medical Jurisprudence, Forensic Medicine And Toxicology, 8th Edition, Published 2019, B.V. Subrahmanyam, Part 5, Section 8, Chapter 36, Page 527-528.
2. Textbook of forensic medicine and toxicology, principles and practice, 6th edition, Published 2014, Krishna Vij, section 2, chapter 29, page 407.
3. Review Of Forensic Medicine & Toxicology, Including Clinical & Pathological Aspects, 5th Edition, Published 2021, Gautam Biswas, Section 2, Chapter 35, Page 509-510.
4. Textbook of forensic medicine and toxicology, principles and practice, 6th edition, Published 2014, Krishna Vij, section 2, chapter 30, page 416-418.
5. Review Of Forensic Medicine & Toxicology, Including Clinical & Pathological Aspects, 5th Edition, Published 2021, Gautam Biswas, Section 2, Chapter 35, Page 512-514.
6. Parikh, Textbook Of Medical Jurisprudence, Forensic Medicine And Toxicology, 8th Edition, Published 2019, B.V. Subrahmanyam, Part 5, Section 8, Chapter 36, Page 531-535.
7. Principles Of Forensic Medicine & Toxicology, 2nd Edition, Published 2017, Rajesh Bardale, Section 2, Chapter 33, Page No. 472-473.
8. Parikh, Textbook Of Medical Jurisprudence, Forensic Medicine And Toxicology, 8th Edition, Published 2019, B.V. Subrahmanyam, Part 5, Section 8, Chapter 36, Page 539-542.
9. Parikh, Textbook Of Medical Jurisprudence, Forensic Medicine And Toxicology, 8th Edition, Published 2019, B.V. Subrahmanyam, Part 5, Section 8, Chapter 37, Page 543-545.
10. Review Of Forensic Medicine & Toxicology, Including Clinical & Pathological Aspects, 5th Edition, Published 2021, Gautam Biswas, Section 2, Chapter 35, Page 521-524.
11. Textbook of forensic medicine and toxicology, principles and practice, 6th edition, Published 2014, Krishna Vij, section 2, chapter 30, page 419-422.
12. Principles Of Forensic Medicine & Toxicology, 2nd Edition, Published 2017, Rajesh Bardale, Section 2, Chapter 33, Page No. 473-478.
13. Principles Of Forensic Medicine & Toxicology, 2nd Edition, Published 2017, Rajesh Bardale, Section 2, Chapter 34, Page No. 490-493.
14. Parikh, Textbook Of Medical Jurisprudence, Forensic Medicine And Toxicology, 8th Edition, Published 2019, B.V. Subrahmanyam, Part 5, Section 8, Chapter 36, Page 531-533.
15. Review Of Forensic Medicine & Toxicology, Including Clinical & Pathological Aspects, 5th Edition, Published 2021, Gautam Biswas, Section 2, Chapter 35, Page 511.
16. Textbook of forensic medicine and toxicology, principles and practice, 6th edition, Published 2014, Krishna Vij, section 2, chapter 29, page 408-409.
17. Principles Of Forensic Medicine & Toxicology, 2nd Edition, Published 2017, Rajesh Bardale, Section 2, Chapter 33, Page No. 472-473.
18. Review Of Forensic Medicine & Toxicology, Including Clinical & Pathological Aspects, 5th Edition, Published 2021, Gautam Biswas, Section 2, Chapter 35, Page 513-514.
19. Parikh, Textbook Of Medical Jurisprudence, Forensic Medicine And Toxicology, 8th Edition, Published 2019, B.V. Subrahmanyam, Part 5, Section 8, Chapter 36, Page 532-534.
20. Textbook of forensic medicine and toxicology, principles and practice, 6th edition, Published 2014, Krishna Vij, section 2, chapter 29, page 409-411.
21. Principles Of Forensic Medicine & Toxicology, 2nd Edition, Published 2017, Rajesh Bardale, Section 2, Chapter 33, Page No. 473-475.
22. Textbook Of Forensic Medicine & Toxicology, 18th Edition, Published 2017, VV Pillay, Section 5, Chapter 26, Page 506-509.
23. Textbook Of Forensic Medicine & Toxicology, 18th Edition, Published 2017, VV Pillay, Section 5, Chapter 27, Page 531-533.
24. Principles Of Forensic Medicine & Toxicology, 2nd Edition, Published 2017, Rajesh Bardale, Section 2, Chapter 35, Page No. 495.
25. Textbook of forensic medicine and toxicology, principles and practice, 6th edition, Published 2014, Krishna Vij, section 2, chapter 31, page 422-425.
26. Parikh, Textbook Of Medical Jurisprudence, Forensic Medicine And Toxicology, 8th Edition, Published 2019, B.V. Subrahmanyam, Part 5, Section 10, Chapter 48, Page 617-618.

ISSN: 2456-3110 **REVIEW ARTICLE** April 2024

27. Parikh, Textbook Of Medical Jurisprudence, Forensic Medicine And Toxicology, 8th Edition, Published 2019, B.V. Subrahmanyam, Part 5, Section 10, Chapter 49, Page 622-624.
28. Textbook Of Forensic Medicine & Toxicology, 18th Edition, Published 2017, VV Pillay, Section 5, Chapter 31, Page 613-615.
29. Textbook of forensic medicine and toxicology, principles and practice, 6th edition, Published 2014, Krishna Vij, section 2, chapter 35, page 456-458.
30. Textbook of forensic medicine and toxicology, principles and practice, 6th edition, Published 2014, Krishna Vij, section 2, chapter 36, page 461-463.
31. Principles Of Forensic Medicine & Toxicology, 2nd Edition, Published 2017, Rajesh Bardale, Section 2, Chapter 43, Page No. 569-571.
32. Textbook Of Forensic Medicine & Toxicology, 18th Edition, Published 2017, VV Pillay, Section 4, Chapter 22, Page 446.
33. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 1, Chapter 1, Page No. 4-6.
34. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 1, Chapter 2, Page No. 30-33.
35. Modi A Textbook Of Medical Jurisprudence And Toxicology, 25th Edition, Published 2016, Justice K Kannan, Section 1, Chapter 3, Page No. 29-33.
36. Principles Of Forensic Medicine & Toxicology, 2nd Edition, Published 2017, Rajesh Bardale, Section 1, Chapter 2, Page No. 10-15.
37. The Essentials Of Forensic Medicine & Toxicology, 34th Edition, Published 2017, Dr. K. S. Narayan Reddy, section 1, Chapter 2, Page No. 9-16.
38. Textbook of forensic medicine and toxicology, principles and practice, 6th edition, Published 2014, Krishna Vij, section 1, part 1, chapter 1, page 7-12.
39. Review Of Forensic Medicine & Toxicology, Including Clinical & Pathological Aspects, 5th Edition, Published 2021, Gautam Biswas, Section 1, Chapter 1, Page 10-13.
40. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 1, Chapter 2, Page No. 32-34.
41. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 2, Chapter 3, Page No. 60.
42. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 2, Chapter 4, Page No. 80.
43. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 2, Chapter 5, Page No. 108.
44. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 3, Chapter 6, Page No. 130.
45. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 3, Chapter 7, Page No. 156.
46. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 3, Chapter 8, Page No. 184.
47. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 4, Chapter 9, Page No. 210.
48. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 4, Chapter 10, Page No. 242.
49. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 4, Chapter 11, Page No. 268.
50. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 5, Chapter 12, Page No. 304.
51. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 5, Chapter 13, Page No. 328.
52. Criminalistics Forensic Science And Crime, Published 2008, James E. Girard, Section 5, Chapter 14, Page No. 358.
53. Parikh, Textbook Of Medical Jurisprudence, Forensic Medicine And Toxicology, 8th Edition, Published 2019, B.V. Subrahmanyam, Part 5, Section 8, Chapter 36, Page 527-534.
54. Textbook Of Forensic Medicine & Toxicology, 18th Edition, Published 2017, VV Pillay, Section 4, Chapter 26, Page 502-507.
55. Review Of Forensic Medicine & Toxicology, Including Clinical & Pathological Aspects, 5th Edition, Published 2021, Gautam Biswas, Section 2, Chapter 35, Page 509-517.
56. Textbook of forensic medicine and toxicology, principles and practice, 6th edition, Published 2014, Krishna Vij, section 2, chapter 29, page 407-413.
57. Principles Of Forensic Medicine & Toxicology, 2nd Edition, Published 2017, Rajesh Bardale, Section 2, Chapter 33, Page No. 471-476.

How to cite this article: Ammar Boriwala, Mayuri Hankare. Literature review about Forensic Toxicology and Poisoning. J Ayurveda Integr Med Sci 2024;4:176-183.
http://dx.doi.org/10.21760/jaims.9.4.28

Source of Support: Nil, **Conflict of Interest:** None declared.

****