



Department : Forensic Science		
Academic Year : 2021		
Sr. No.	Programme Code	Name of the Programme
01.	119	B.Sc. Forensic Science

Following students have carried out their Project work/ Internship/
Field Project/Industrial Training for the academic session 2021-22

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विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



**A review on
“Death due to electrocution in humans”**



Department Of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.
Submitted for
Partial fulfilment for the degree of
Bachelors of Science in Forensic Science
2019-2022

Under the Supervision of
Dr. I. Arjun Rao
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

By
Miss Aanchal Sakarkar
B. Sc 6th Semester
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Forwarding Certificate

This is to certify that **Aanchal Sakarkar** of B.Sc. Hon's (Forensic Science) VIth semester has worked on review report entitled "**death due to electrocution in humans**" under the supervision of Dr. I Arjun Rao for the fulfilment of the degree of Bachelor of Science in Forensic Science.

Date: 05/05/2022

Head

Dr. Sudhir Yadav

Assistant Professor & Head

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur C.G.

Head,

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur (C.G.)

विभागाध्यक्ष
HEAD

फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Abstract

Electricity is one the most important and precious thing in the human life. We can't imagine are daily lifestyle without electricity, from small house hold to large industries electricity is the key we require daily Apart from n number of advantages or merits electricity also have disadvantages or demerits. AS human are conductors, whenever human comes in contact with electric charge or current, the current flow through the body of the victim and cause fatal damage to the body of the victim for life time and even death of the individual. Whenever death occur due to electric current entering the body of the individual it is called "death due to electrocution". Electrocution deaths are generally seen to be accidental in nature rarely suicidal and homicidal cases have been reported. Accidental electrocution generally causes due to improper handling of things related to electricity and by using proper safety measures like wearing gloves, leather boots etc. Death due to electrocution in major problem especially in low-income countries and group of people as they don't invest in safety measures

The electrocution death due to alternating current is more reported than death due to direct current which states the fact that alternating current is more dangerous the direct current, same amount of alternating current cause more damage to the victim's body rather same amount of direct current. Whenever current enters in the individual's body the damage to the body mainly depends upon resistance provided by the body, area of contact with the current, path travelled by current in the body, duration of contact, behaviour etc. Whenever electric current enters the human body severe problems which leads to death of the individual for example ventricular fibrillation, spasm of muscle paralysis of respiratory centre etc. In electric shock cases it is not necessary death always occur due to electric current but sometimes also occur to secondary causes. Lightning is the natural phenomena. Lightning is the short-lived singularities in which high - current, electric discharge is liberated from the sky, it is liberated in the form of direct current, death can also occur to the individual when they come in contact with lightning or when lightning fall in the human body. It also causes fatal damage to the human body which can also lifetime problems and even death of the individual

Whenever electricity enters in the human body it causes burns and damages which is also called as entry is that point from which current entered the body and exit mark point where current leave the body of the individual. But some these marks are absent in certain conditions which makes difficult for the forensic pathologist to find the cause of death. Electrocution also causes

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विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
कोनी, बिलासपुर - 495009 (छ.ग.)



Guru Ghasidas Vishwavidyalaya
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
Koni, Bilaspur - 495009 (C.G.)

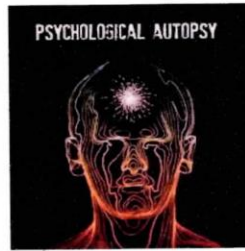


DEPARTMENT OF FORENSIC SCIENCE

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

A REVIEW ON

Psychological Autopsy as an emerging tool in forensic investigation: Application and Relevance



Submitted for

Partial fulfillment of the degree of

B.Sc. Hon's in Forensic Science

By

Aashtha Tiwari

B.Sc. Hons Forensic Science

Enrollment No. – GGV/19/3015 Roll No- 19205502

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Under the Supervision of

Dr. Ajay Amit

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



DEPARTMENT OF FORENSIC SCIENCE

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Certificate

This is to certify that Miss **Aashtha Tiwari** student of B.Sc. Hon's (Forensic Science) VIth semester has worked on a review report entitled "**Psychological Autopsy as an emerging tool in forensic investigation: Application and Relevance**" under the supervision of Dr. Ajay Amit for the partial fulfillment of the Hon's degree of Bachelor of Science in Forensic Science.


Supervisor

Dr. Ajay Amit

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Date:05/05/2022

Place: Bilaspur C.G.

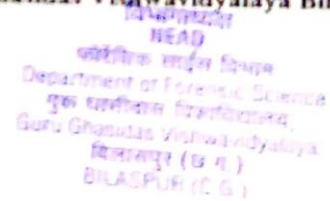

Head

Dr. Sudhir Yadav

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.


HEAD
कोषिक सहायक विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



विभागध्यक्ष
HEAD
कोषिक सहायक विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Abstract

The main motive of this review paper is to elevate the awareness and improve the perception of the layman about the psychological autopsy process. Psychological Autopsy (PA) is considered the keystone of suicide research providing detailed information. Its prime objective is to rectify full-scale information about suicide. Information is collected from key informants i.e., family members, relatives, close friends, and colleagues. Additional information about the decedent is gathered from personal documents, social media and networking history, and available healthcare and mental records. Thus, the information is synthesized from various informants and personal records. The process of PA is used in the death investigation cases to come to a valid conclusion regarding the manner of death when the manner is in question; particularly considering suicide cases, the exact manner of death is in question\ unknown. Thus, PA is an advanced step to analyze the risk factors and mental state of the decedent before death.

Keywords - Psychological autopsy, decedent, informants, suicidal death, equivocal death.

A handwritten signature in black ink that reads 'Naveen'.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



GURU GHASIDAS VISHWAVIDYALAYA

A review on

Extraction techniques of diatoms in drowning cases

Submitted for partial fulfillment of the degree of B.Sc (Honours) Forensic
Science

By

Miss ANAMIKA BANJARE

B.Sc.(Hon's) Forensic Science

Enrollment No – GGV/19/3142

Roll No- 19205503

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Under the supervision of

DR. SUDHIR YADAV

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)




GURU GHASIDAS VISHWAVIDYALAYA

**Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G**

Approval Certificate

This is to certify that Anamika banjare of B.Sc. honors (Forensic Science) Vith Semester worked on review report entitled "Extraction techniques of diatoms in drowning cases" Under the supervision of Dr. Sudhir Yadav for fulfilment of degree of Bachelor of Science in Forensic science.

Date: 05/05/2022


**Head
Dr. Sudhir Yadav
Assistant Professor & Head
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur C.G**

**Head,
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)**



**विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)**



Abstract

Diatom test is an important tool in Diagnosis death in drowning cases. As the typical features of ante-mortem drowning faded veritably fleetly with inception of corruption and hence diatom test plays an important part for opinion and evidence of drowning deaths. Diatoms have number of characteristic like their wide presence in water high diversity inspecies, particularity and have a good eventuality or preservation and therefore this group can be used in forensic geosciences for Felonious examinations. Birth and identification of diatoms present in the tissue Samples can be used a probative Substantiation in drowning and for point specific diatoms. Temperature and pH variations also play important part in the distribution of diatoms in a particular position .Diatoms species discovery in both water and tissue samples gave a trust ability of the diatom test in working cases pertaining to drowning deaths. Hence the possible Means and styles must be rehearsed on a regular base by the forensic check as well interpreters So that new possibilities must always be explored for birth and identification of diatoms in near future. This paper reviews the recent time's progress on diatom test and its operation in forensic wisdom.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A review on
PSYCHOLOGY OF SERIAL KILLERS



Department Of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Submitted for
Partial fulfillment for the degree of
Bachelors of Science in Forensic Science
2019-2022

Under the Supervision of
Dr. I. Arjun Rao
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

By
Miss Anusreeta Manna
B. Sc 6th Semester
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

विभागाध्यक्ष
HEAD
कोशिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्व विद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Forwarding Certificate

This is to certify that **Anusreeta Manna** of B.Sc. Hon's (Forensic Science) VIth semester has worked on review report entitled "**PSYCHOLOGY OF SERIAL KILLERS**" under the supervision of Dr. I Arjun Rao for the fulfillment of the degree of Bachelor of Science in Forensic Science.

Date: 03/05/2022

Head

Dr. Sudhir Yadav

Assistant Professor & Head

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

विभागाध्यक्ष
HEAD

Bilaspur, C.G.

Department of Forensic Science

गुरु घासीदास विश्वविद्यालय,

Guru Ghasidas Vishwavidyalaya,

बिलासपुर (छ.ग.)

iii BILASPUR (C.G.)

विभागाध्यक्ष
HEAD

फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT

The term serial killing is becoming very fascinating throughout the world. This review paper mainly focuses on how the serial killers think and how they commit murders repeatedly. The introduction part of this paper gives a basic idea about the serial killers like who they actually are and how they commit their offences. In the review part. It describes the types which were discovered by researchers to make the investigation easy. Also, the developmental theories like biological and psychosocial theories are mentioned to understand why someone chooses to become a serial killer in future. Motivations which influence an individual to commit such heinous crimes also described here. This review also discusses basics of two methods – criminal profiling and PCL-R, which have significant bearings on investigation of serial killing cases. At last, some further researches which are needed in future for better dealing with these cases are explained here.

Key words: Serial killers, biological theories, psychological theories, criminal profiling, PCL-R

A handwritten signature in black ink on a grey rectangular background. The signature appears to be 'Naveen'.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



DEPARTMENT OF FORENSIC SCIENCE

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

A REVIEW STUDY ON
Biomarkers Of Alcohol Metabolism and Its Relevance in Forensic Investigations



Submitted for

Partial fulfilment of the degree of
B.Sc. Hon's In Forensic Science

By

Apoorva Dewangan

B.SC. Hons Forensic Science

Enrolment No. – GGV/19/3117 Roll No- 19205505

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Under the supervision of

Dr. Ajay Amit

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

विभागाध्यक्ष
HEAD

फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

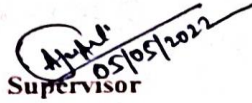


DEPARTMENT OF FORENSIC SCIENCE

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Certificate

This is to certify that Miss Apoorva Dewangan, student of B.Sc. Hon's (Forensic Science) VIth semester has worked on review report entitled "Biomarkers of Alcohol Metabolism and its Relevance in Forensic Investigations" under the supervision of Dr. Ajay Amit for the partial fulfilment of the Hon's degree of Bachelor of Science in Forensic Science.


Supervisor

Dr. Ajay Amit
Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G

Date: 04/05/2022

Place: Bilaspur C.G

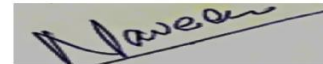

Head

Dr. Sudhir Yadav
Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Abstract

The consumption of alcohol by human beings are monitored by the recognition of direct and indirect biomarkers. Liver enzymes such as Gamma Glutamyl Transferase (GGT), Alanine Aminotransferase (ALT), Aspartate Aminotransferase (AST) are elevated in blood can be used in forensic for determination of amount of alcohol consumption and the pattern of drinking. Carbohydrate Deficient Transferrin (CDT) as indirect biomarker having exception as it can be elevated in cases other than alcohol related diseases. Non-oxidative biomarkers such as Ethyl Glucuronide (EtG) and Fatty Acid Ethyl Esters (FAEE) have longer half-life and a tendency to incorporate into hairs gives better time frame and drinking pattern in the determination of alcohol abuse. Direct markers having higher specificity giving better opportunity to analyse and compare alcohol consumption. Precaution has to be taken regarding pre-analytical impact of indirect markers on direct ethanol metabolites in forensic science. The aim of this review is to investigate sensitivity and specificity of EtG, FAEE, PEth, in hair to analyse heavy alcohol intake pattern and different biomarkers with comparison to CDT, AST, ALT, GGT. Analysis of hair is a powerful method for retrospective drug analysis. Determination of direct non-oxidative metabolites EtG and FAEEs in hair can detect the time of alcohol consumption even after abstinence.

विभागाध्यक्ष
HEAD
कोरैसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



GURU GHASIDAS VISHWAVIDYALAYA
A CENTRAL UNIVERSITY
BILASPUR (C.G.)



A Review Study on
“EMERGING TECHNOLOGIES TO COMBAT
WILDLIFE CRIME”

B.Sc. dissertation submitted to Guru Ghasidas Vishwavidyalaya,
Bilaspur

In partially fulfillment of the requirements of the degree
Bachelor of Science in Forensic Science

By

Bhival Nishad

(Enrollment no.-GGV/19/3113, Roll no.-19205506)

Under the guidance of

Dr. Ajay Amit

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



CERTIFICATE BY HEAD

Certified that the review entitled “EMERGING TECHNOLOGIES TO COMBAT WILDLIFE CRIME”, submitted by **BHIVAL NISHAD** is his own work and has been done at the Department of Forensic Science, GGV, Bilaspur (C.G.). It is recommended that this review may be placed before the examiner for evaluation in the partial fulfilment of the bachelor's degree in Forensic Science.

Date: 05/05/2022

Place: Bilaspur

NAME: DR. SUDHIR YADAV

(Signature of the Guide)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



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Navan

विभागाध्यक्ष
HEAD
कोशिसिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A REVIEW
ON
“ADVANCES IN APTASENSOR BASED DETECTION OF ABUSED DRUGS”



Department Of Forensic Science
GURU GHASIDAS VISHWAVIDYALAYA BILASPUR C.G.

Submitted for
Fulfillment of the Degree of
Bachelors of Science
In
FORENSIC SCIENCE

2019-2022

BHUMIKA CHANDRAKAR
B.Sc. (VIth SEMESTER)
Enrolmentno: GGV/19/3006,
Roll no.:19205507

UNDER THE SUPERVISION
OF
Dr. CHANCHAL KUMAR
Assistant Professor, Department of Forensic science,
GURU GHASIDAS VISHWAVIDYALAYA),
KONI, BILASPUR-495009(C.G)

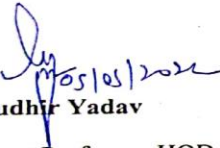
विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
GURU GHASIDAS VISWAVIDYALAYA BILASPUR C.G.


APPROVAL CERTIFICATE

This is to certify that **BHUMIKA CHANDRAKAR** of B.Sc. Hon's (Forensic Science) VIth semester has worked on review report entitled "ADVANCES IN APTASENSOR BASED DETECTION OF ABUSED DRUGS" under the supervision of Dr. Chanchal Kumar for the fulfillment of the degree of Bachelor of Science in Forensic Science.


Dr. Sudhir Yadav

Assistant Professor, HOD
Department of Forensic Science,
Guru Ghasidas Vishwavidyalaya bilaspur C.G

Date: विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)


विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

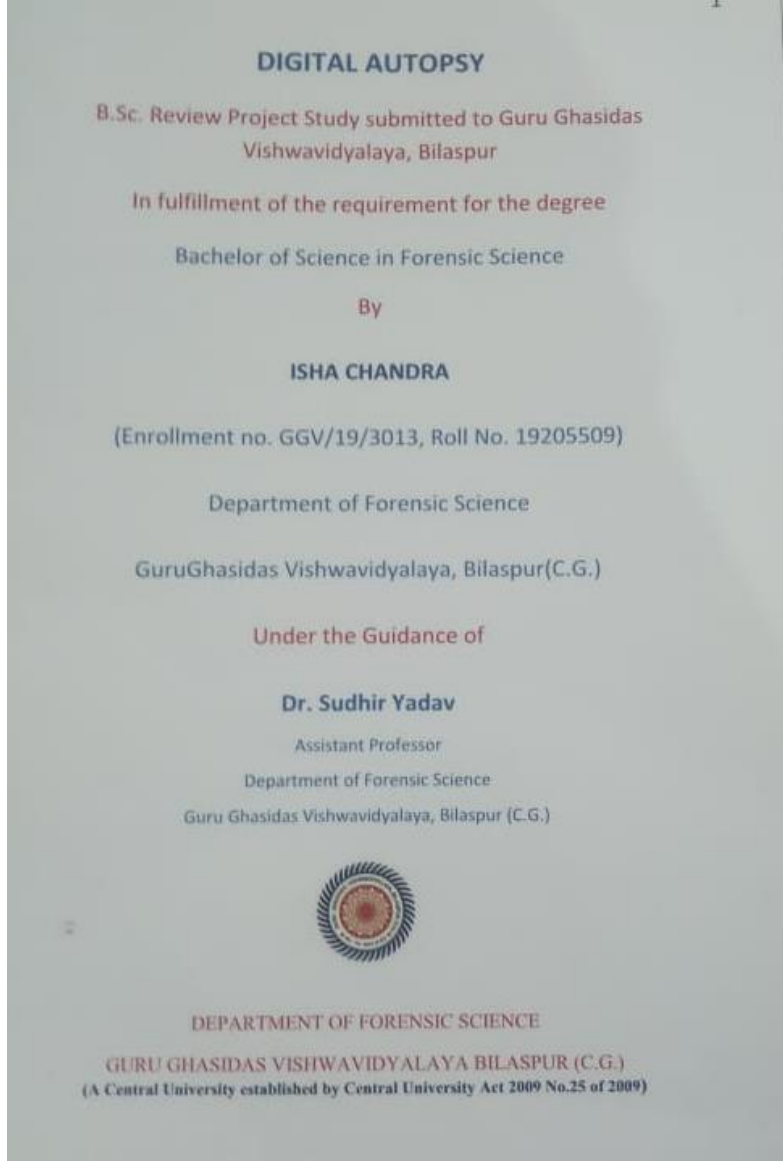


ABSTRACT

Drug abuse is linked to a sleuth of medical, societal, and legal issues. As a result, testing of "abuse drugs" is crucial in forensic toxicology and allied domains. It's usually done to confirm an immediate drug effect (for example, in drugged driving) or to keep track of drug abstinence (e.g., in workplace drug testing). Invasive methods have become an increasingly essential testing matrix, allowing onsite collect using compatible devices, in addition to the traditional biomatrices blood (acute effects) and urine (abstinence testing). Gas chromatography or liquid chromatography coupled with single-stage or tandem mass spectrometry are commonly employed for confirmation tests as well as non-targeted drugs of abuse testing. These methods are extremely selective and sensitive, resulting in accurate identification of compound but they are time consuming and expensive, lack of onsite sample collection and identification in rural areas due to point of care methods, devices, medical facilities. Thus aptamers based assay and devices were developed to address this. Aptamers are single-stranded DNA or RNA molecules that bind strongly and selectively on their molecular targets. The aptasensor development and its application approach are explained in this review. Beginning with the synthesis of the required analyte's matching aptamer sequence and ending with the development of a sophisticated substrate for the sensitive detection of the molecule of interest. The use of nucleic acid-based aptamers as recognition molecules in optical, fluorescent, and electrochemical biosensing systems for detecting drugs of abuse is critically evaluated, with current and potential uses of various designs investigated. Several potential applications for aptamer-based biosensing technologies are highlighted in this review including forensic drug analysis and biological evidence, to encourage researchers to focus on developing aptasensors in these disciplines. Here aptamer based devices are available for detection of drug abuse, but there are gaps, for analyzing or onsite detection of drug abuse device. In this review we have focused on development aptamers detection method and devices.

Key words : Drug of abuse , Aptamers, SELEX, biosensors, RNA ,DNA .

विभागाध्यक्ष
HEAD
कोशिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



विभागाध्यक्ष
HEAD
कोशिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



[Signature]
विभागाध्यक्ष
HEAD
कोशिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Abstract

6

Digital autopsy also known as virtopsy is a multidisciplinary technology that combines forensic medicine to forensic pathology. Digital autopsy is minimally invasive technology in the field of forensic medicine. Digital autopsy is scalpel free and it includes different techniques like X-ray, ultrasound, MRI, MMI, MR microscopy, MRS and Virtobot. Digital autopsy involve analysis of human pathology and anatomical findings for diagnostic purpose this can be used for education and research paper. This paper present the outlines on the history of digital autopsy. Digital autopsy is as convient as conventional because it takes only few minutes only on CT scanner or MRI scanner ,without losing the detail of the body and through digital autopsy and we can analyze small fractures ,injury ,damages ,or any minute damages that may not reveal in conventional autopsies. The modern high resolution imaging has been used as a well described aid in setting of postmortem examination during investigation. The digital autopsy is used in determining cause of death, establishing identity of individual and for determining age and sex determination. Medicolegal autopsy in covid -19 death is a high risk procedure and should be avoided where possible and at that time digital autopsy has been suggested as an effective alternative to high risk traditional y procedure because there will be no direct contact between the body and the individual performing digital autopsies.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



GURU GHASIDAS VISHWAVIDYALAYA

A REVIEW ON

“AGRICULTURAL POISONING AND EFFECTS ON HUMAN HEALTH”

Submitted for partial fulfillment of the degree of B.Sc. (Honors) Forensic
Science

By

KAUSHAL NAYAK

B.Sc. (Hon's) Forensic Science

Enrollment No – GGV/19/3183

Roll No- 19205510

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Under the supervision of

Miss. BLESSI N. UIKEY

Assistant Professor

Department of Forensic Science

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



GURU GHASIDAS VISHWAVIDYALAYA

Certificate

This is to certify that KAUSHAL NAYAK student of B.Sc. (Hon's) Forensic Science VIth semester has worked on review report entitled "AGRICULTURAL POISONING AND EFFECTS ON HUMAN HEALTH" under the supervision Miss. BLESSI N. UIKEY for the partial fulfillment of the Hon' degree of Bachelor of Science in Forensic Science.

Supervisor

Miss. BLESSI N. UIKEY
Assistant Professor
Department of Forensic Science
Guru Ghasidas Vishwavidyalay,
Bilaspur C.G.

Head

Dr. Sudhir Yadav
Assistant Professor
Department of Forensic Science
Guru Ghasidas Vishwavidyalay,
Bilaspur C.G.

विभागाध्यक्ष
HEAD
कॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

विभागाध्यक्ष
HEAD
कॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT:

The current report here represents a comprehensive review of Agricultural poisoning and its health effects on human health including its theory, research legal history etc. specifically the review focuses on issues and problem of poisoning due to pesticides or agricultural chemicals on human health. The agricultural poisoning once became a leading cause of increase in death rate but in few years the governments of different countries has taken initiatives to ban various harmful pesticides. But in countries like India are still currently using various pesticides which are globally banned. This paper highlights on the aspect and the various diseases an agricultural chemical can cause and which type of pesticide may cause those certain diseases.

Agricultural chemicals or pesticides are used for increasing the crop yield of the farmlands and are as well as used to control pest (unwanted plates or animals). But if it is used in excess amount then it can become poison which will cause various types of health issues to the consumer. Agrochemicals can cause acute and chronic poisoning. This paper highlights the pesticide exposure risk, human exposure to pesticides, their classification, uses, which types of pesticides may cause which type of diseases, some of the pesticides such as Endrin and OPCS their actions, fatal dose fatal period etc. This paper also gives a brief or some statistical data on state wise pesticide consumption on pesticide as well as some of the statistical data states about the number of death cases registered.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A

Review-based study on

“LIE DETECTOR USING EEG SYSTEM”

Submitted to Guru Ghasidas Vishwavidyalaya, Bilaspur for the Partial
Fulfillment of the Degree of **BACHELOR OF SCIENCE**
IN FORENSIC SCIENCE

2019-2022

By

Neha Kashyap

En. No. : GGV/19/3017 Roll No.: 19205511

Under the Guidance of

Miss Neha Gupta

Assistant Professor (Ad -op)

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)



GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

A Central University

Bilaspur (C.G.)

2022

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

(A Central University established by Central University Act 2009 no. 25 of 2009)

CERTIFICATE

This to certify that **Miss Neha Kashyap** student of B.Sc. Hon's (Forensic Science) VI semester has worked on review report entitled "**Lie Detector Using EEG System - A Review Report**" under the supervision of **Miss Neha Gupta** (Ad -op Assistant professor) for the partial fulfillment of the requirement for the Hon's degree of Bachelor of Science in Forensic Science in this University. The review report or any part thereof has not been previously submitted for any other degree or diploma in any University and Institution.

Date: 4/05/2022

Place: GGU Bilaspur (C.G)

Head of the Department

Dr. Sudhir Yadav
विभागाध्यक्ष
HEAD

फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



LIE DETECTOR USING EEG SYSTEM

ABSTRACT

Polygraph is a device used to detect the untruth spoken by an individual in various situations, which records changes in respiration, blood pressure and pulse. A unit for recording muscular subject's body is an additional feature of modern polygraph instrument. Among the most interesting and exciting new development in EEG application in psychological studies is the examination of distribution patterns of activation. By using EEG used to measure electric activity of large group of neuron that is active at the same time. Basically, speaks the truth or untruth associated with the process and prepare the question set for a subject. The advance technology has helped in detection to make more feasible in detection. Wavelet transform, Independent component analysis, Autoregressive modeling, principal component analysis are the feature extraction in the EEG signals performing in the brain computer interface. Brain Computer Interface (BCI) build with EEG system in which a body have to imagine the thought were EEG signal collected from the 16 channels and studied during investigation gain the curiosity in the medical science and entertainment. The purpose of study is to evaluate the truth and untruth by alpha waves from the electrodes.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A review on
Forensic Psychology – Differentiating
Sociopaths and Psychopaths



Department Of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Submitted for
Partial fulfillment for the degree of
Bachelors of Science in Forensic Science
2019-2022

Under the Supervision of
Dr. I. Arjun Rao
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

By
Palak Chaubey
B. Sc 6th Semester
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

विभागाध्यक्ष
HEAD
कोशसिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Forwarding Certificate

This is to certify that **Palak Chaubey** of B.Sc Hon's (Forensic Science) VIth semester has worked on review report entitled "**Forensic psychology – differentiating sociopaths and psychopaths**" under the supervision of Dr. I Arjun Rao for the fulfillment of the degree of Bachelor of Science in Forensic Science.

Date:05/05/2022

Head

Dr. Sudhir Yadav

Assistant Professor & Head
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur C.G.

Head,

Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Abstract

The Psychopaths and Sociopaths are clinically those people who exhibits the characteristics of anti social personality disorder, which is classified by the pervasive patterns of disregard towards the rights and feelings of others. There is a much confusion because of lack of literature in the topic, this is why these terms are often used interchangeably though both of them has their own lines of distinction. Psychopathy and sociopathy should be assessed for all violent offenders because of the serious implications for treatment interventions as well as risk for violent reoffense. Approximately 3-15% of those with APD are likely to be psychopaths and 30% of rest sociopaths.

Keywords – APD, psychopaths, sociopaths.

विभागाध्यक्ष
HEAD
कोशिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A

Review-based study on

“Forensic Significance of Cannabis metabolites as a Biomarker for cannabis abuse”

submitted to

Guru Ghasidas Vishwavidyalaya, Bilaspur
in partial fulfillment of the requirement for the
degree of

Bachelor of Science

In

Forensic Science

By

Poonam Singh Kshatriya

(En. No. : GGV/19/3022 Roll No.: 19205515

Under the Guidance of

Dr. Ajay Amit

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)



GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

A Central University

Bilaspur (C.G.)

2022

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
(A Central University Established Under the Central Universities Act, 25 of 2009)
Bilaspur, Chhattisgarh, India

No. /F. Sc./2022
Date: 5.1.22

Bilaspur

Dr. Sudhir Yadav
Assistant Professor and Head
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)

FORWARDING CERTIFICATE

This is to certify that the review-based study “**Forensic Significance of Cannabis metabolites as a Biomarker for cannabis abuse**” has been submitted by Ms. Poonam Singh Kshatriya, B.Sc. forensic Science 6th semester, Guru Ghasidas Vishwavidyalaya, Koni, Bilaspur (C.G.) under the guidance of Dr. Ajay Amit towards partial fulfilment of the requirements for the award of Bachelor’s Degree in Forensic science.

Dr. Sudhir Yadav

Assistant Professor and Head,
Department of Forensic Science

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT

Cannabis sativa is being used traditionally in various civilizations. In modern-day medicine, many research had been done on this particular plant and many more to explore. Cannabis also known as Indian hemp, Marijuana, or Bhang is used as a CNS stimulant pharmacologically it is categorized as an illegal substance and its possession comes under schedule under the Drugs and Cosmetics Act 1940. Cannabis contains a resin as an active constituent cannabinol and cannabidiol are the main ingredients of cannabis. And the primary psychoactive constituent of cannabis delta9tetrahydrocannabinol (Δ^9 _THC). Its conversion results in the tetrahydrocannabinol (THC) Which acts on a brain receptor called cannabinoids receptor. It is metabolized in the liver which is called hepatic metabolism and the metabolism which occurred outside of the liver is called extrahepatic metabolism Tetrahydrocannabinol (Delta(9)-THC), the primary psychoactive ingredient in marijuana, is subject to cytochrome P450 oxidation and subsequent UDP-glucuronosyltransferase (UGT)-dependent glucuronidation. CYP2C9 and CYP3A4 are the primary enzymes responsible for these cytochrome P450-dependent oxidations, but little work has been done to characterize phase II metabolic pathways. The effects of cannabis show on the different body systems. Cannabis is lipid-soluble It can cross the blood-brain barrier by 1 % and about 75% of the drug is eliminated by feces and urine. IN which 65% of cannabis is excreted in the feces and approximately 15% is excreted in the urine. Most of the cannabis (80-90%) is excreted within 5 days as hydroxylated and carboxylate metabolites. cannabis extracts are analyzed by different Instrumentation techniques such as Enzyme multiplied Immunoassay, Gas chromatography - Tandern mass spectrometry (GC-MS), and Radioimmunoassay (RIA) these methods are very useful in various fields like toxicology confirmation and screening, medicine and pharmaceutical companies, forensics and criminal cases, analysis of complex matrices, biological fluids, plant extracts, and food and environmental samples.

विभागध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A REVIEW ON
**USE OF MITOCHONDRIAL DNA IN
SPECIES IDENTIFICATION**



Department Of Forensic Science

GURU GHASIDAS VISHWAVIDYALAYA BILASPUR C.G.

Submitted for

Fulfillment of the degree of

Bachelors of Science in FORENSIC SCIENCE

2019-2022

By :

Ms. PURNIMA BHARIYA

B.Sc Hons. Forensic Science

Enroll No. – GGV/19/3025

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur C.G.

Under the Supervision of

DR. CHANCHAL KUMAR

(Assistant Professor)

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur C.G.

विभागाध्यक्ष
HEAD
कोशिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science

GURU GHASIDAS VISWAVIDYALAYA BILASPUR C.G.

APPROVAL CERTIFICATE

This is to certify that **PURNIMA BHARIYA** of B.Sc Hon's (Forensic Science) VI semester has worked on review report entitled "USE OF MITOCHONDRIAL DNA IN SPECIES IDENTIFICATION" under the supervision of Dr. Chanchal Kumar for the fulfillment of the degree of Bachelor of Science in Forensic Science.

Date: 05/05/2022

Head

Dr. Sudhir Yadav

(Assistant Professor & Head)
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

3

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



MITOCHONDRIAL DNA (CYT B) IN SPECIES IDENTIFICATION

ABSTRACT:

Wildlife crime involves the trading of endangered and protected species protected under the Wildlife Protection Act of India 1972 and monitored by Convention on International Trade in Endangered Species of Wildlife, Flora and Fauna (CITES). The most commonly found evidence of wildlife crimes are bones, hairs, ivory, antlers, claws, and highly processed animal products. Some of the evidences like hair, skin, antlers, etc. can be identified using morphometric techniques and microscopy. Degraded animals sample like urine, saliva, and formalin preserved samples can't be analyzed. Hence, its need of hours for better techniques over morphology and microscopy to identify species.

Species identification in wildlife forensics is one of the major concerns for law enforcing agency and curbing of illegal wildlife trade. Among all the available techniques, DNA-based species identification is the most robust and acceptable evidence in a court of law. Species identification can be performed efficiently with the help of mitochondrial DNA (mtDNA) by using short fragments of cytochrome b gene (*cytb*), especially in samples that are degraded and low in quality.

This review covers the various aspects of species identification in forensic, wildlife, taxonomic, and phylogenetic studies and it highlights the role of the mtDNA *cytb* gene in the identification of different animal species.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A REVIEW ON

“Changes in Hematological Parameters of Alcoholic Persons: A systematic Review”



Department of Forensic science

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G)

Submitted for fulfillment of the requirement for degree

Bachelor of Science in Forensic science

Submitted by,

RAHEMEEN BANO

Enrollment no.- GGV/19/3026 (Roll no.-19205518)

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya, Bilaspur(C.G)

Under Guidance of

Dr. Sudhir Yadav

Head of department

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya, Bilaspur

(C.G)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G

CERTIFICATE

This is to certify that Rahemeen Bano student of B.Sc. Hon's (Forensic Science) 6th semester has worked on review report entitled

**“Changes in hematological parameters of alcoholic persons
A systematic review”**

Under the supervision of Mr. Sudhir Yadav for the fulfillment of the Hons. degree of Bachelor of Science in Forensic Science.

Supervisor
Sudhir Yadav
Head of Department:
Guru Ghasidas Vishwavidyalaya, Bilaspur C.G
Department of forensic science
Bilaspur, C.G

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Abstract

Alcohol intake is a serious problem worldwide. It is estimated that the total population classified as alcohol consumers around the world is about 2 billion in which about 76.3 million people develop use disorder. The aim of this review paper is to find out the effects of alcohol in blood parameters. Blood or haematological parameters such as RBCs, platelets, WBC, MCV, MCH, bone marrow etc are reviewed here. In this, it is also seen that time of admission of patient also plays a crucial role in treating the abnormalities of that patient caused by alcohol. Anaemia is the major abnormality seen here. Blood clot malfunctioning is also seen as a result of long-term alcohol ingestion.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
कोनी, बिलासपुर - 495009 (छ.ग.)



Guru Ghasidas Vishwavidyalaya
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
Koni, Bilaspur - 495009 (C.G.)



GURU GHASIDAS VISHWAVIDYALAYA

A review on
AGE ESTIMATION FROM FORENSIC
ODONTOLOGY

Submitted for partial fulfillment of the degree of B.Sc. Hon's in
Forensic Science

By
RudrikaDeshmukh
B.Sc. Hon's Forensic Science
Enrollment No.- GGV/19/3029
Roll No- 19205520

Department of Forensic Science
Guru GhasidasVishwavidyalaya,
Bilaspur, C.G.

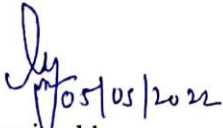
Under the supervision of
Dr. Sudhir Yadav
Assistant Professor,Head
Department of Forensic Science
Guru GhasidasVishwavidyalaya, Bilaspur C.G.

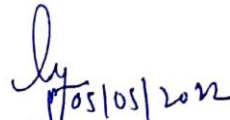
विभागाध्यक्ष
HEAD
कोरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्व विद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



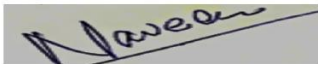
CERTIFICATE

This is to certify that RudrikaDeshmukh student of Forensic Science B.Sc.
Hon's VIth semester has worked on review report entitled on "Age
Estimation From Forensic Odontology" under the supervision of Dr.
Sudhir Yadav for the partial fulfillment of the Hon's degree of Bachelor
of Science in Forensic Science.


Supervised by
Dr. Sudhir Yadav
Assistant Professor
Department of Forensic Science


Head
Dr. Sudhir Yadav
Assistant Professor
Department Of Forensic Science

Head,
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)


विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Bilaspur (C.G.)
BILASPUR (C.G.)

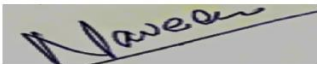
1. ABSTRACT

Odontology is the study of teeth. Odontologists study their development, diseases and analyse their structure. Odontology is a specialty of dentistry that helps to identify unknown remains. Age estimation plays an important role in forensic dentistry for dead individual identification as well as for a living person to clarify criminal and civil liability issues. Dental maturity is one of the most reliable indicators of chronological estimation method used for criminal, forensic and anthropological purposes. Age estimation can be done in various phases of life from prenatal to adult. Various methods of age estimation are morphological methods, biochemical methods and radiological methods.

Figure –forensic odontology



Figure-Drusini AG (2008) The coronal pulp cavity index: A forensic tool for age determination in human adults. *Cuad Med Forensic* 53: 235-249[40].



विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A REVIEW ON

A STUDY ON MANAGEMENT OF ALUMINIUM PHOSPHIDE TOXICITY



**Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.**

(A Central University established by Central University Act 2009 No. 25 of 2009)

Partial fulfillment of degree of
B.Sc. Hon's in Forensic Science

By

Rupali Dansena

B.Sc. Hon's Forensic Science

Enroll.No. GGV/19/3030

Department of Forensic Science

Under the Supervision of

Dr. Sudhir Yadav

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

**विभागाध्यक्ष
HEAD
कोशिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)**



**Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.**

(A Central University established by Central University Act 2009 No. 25 of 2009)

Certificate

This is to certify that Rupali Dansena student of B.Sc. (Hon's) Forensic Science VIth Semester has worked on review report entitled "A study on management of Aluminum phosphide toxicity" under the supervision of **Dr. Sudhir Yadav** for the partial fulfillment of the Hon's degree of Bachelor of Science in Forensic Science.


Supervisor

Dr. Sudhir Yadav
Assistant Professor

Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur C.G.


Head

Dr. Sudhir Yadav
Assistant Professor

Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur C.G.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT

This review paper provides an insight on various methods that has been handled by physician to manage the ALP poisoning, and it also provides knowledge of the clinical manifestations that play a significant role in deciding the appropriate treatment .Aluminium phosphide (AIP) is a cheap solid fumigant and a highly toxic pesticide that is commonly used for grain preservation. AIP has currently generated interest with increasing number of cases in the past four decades because of its increased use for agricultural and non-agricultural purposes, and also its easy availability in the markets has led to its increased misuse to commit suicide. Ingestion is usually suicidal in intent, uncommonly accidental and rarely homicidal. The poison affects all systems, shock, cardiac arrhythmias with varied ECG changes and gastrointestinal features being the most prominent. Diagnosis of ALP poisoning largely depends on history and clinical setting and treatment is usually initiated without waiting for silver nitrate paper test or gastric aspirate analysis. Unfortunately, the lack of a specific antidote results in very high mortality and the key to treatment lies in rapid decontamination and institution of resuscitative measures. For treatment of aluminium phosphide poisoning the doctors uses some methods and material for management of aluminium phosphide. supportive management and different treatment modalities and protocols have been tried at various centres with variable success. Treatment includes early gastric lavage with potassium permanganate or a combination with coconut oil and sodium bicarbonate, administration of charcoal, and palliative care. Specific therapy includes intravenous magnesium sulphate and oral coconut oil. Moreover, acidosis can be treated with early intravenous administration of sodium bicarbonate, cardiogenic shock with fluid, vasopressor, and refractory cardiogenic shock with intra-aortic balloon pump or digoxin. Trimetazidine may also have a useful role in the treatment, because it can stop ventricular ectopic beats and bigeminy and preserve oxidative metabolism. We have done Meta- analysis on Management of aluminium phosphide poisoning under (2000-2022) to analyse the methods and material used for management of this poison.

विभागाध्यक्ष
HEAD
कोशिक साईस विभाग
Department of Forensic Science
गुरु घासीदास विश्व विद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A review on
Forensic Entomology: Post Mortem Interval
Estimation



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Submitted for
Partial fulfilment for the degree of
Bachelors of Science in Forensic Science
2019-2022

Under the Supervision of
Dr. I. Arjun Rao
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

By
Miss Shrishti Tripathi
B.Sc. 6th Semester
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science

Guru Ghasidas Vishwavidyalaya, Bilaspur C.G.

Forwarding Certificate

This is to certify that **Shrishti Tripathi** student of B.Sc. Hon's (Forensic Science) VIth semester has worked on review report entitled "**Forensic Entomology : Post mortem Interval(PMI) Estimation**" under the supervision of Dr. I. Arjun Rao for the fulfilment of the degree of Bachelor of Science in Forensic Science.

Date: 05/05/2022

Head

Dr. Sudhir Yadav

Assistant Professor and Head
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur C.G.

Head,
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur (C.G.)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT

Forensic Entomology is one of the broad fields of science that plays a very crucial role in legal investigation. Here insects play a fundamental ecological role in corpses found at crime scene. The most important application of forensic entomology is the calculation of time since death (TSD) or post mortem interval (PMI). TSD helps in establishing the timeline of events that lead to death. It is also helpful in identifying the real convict and eliminating the number of suspects in murder cases. This paper reviews different methods of post mortem interval estimation by using arthropods mainly flies and beetles to make the investigator, researchers and students aware about the importance of entomology in the cases where the bodies are found in decomposed form. The various challenges that lead to wrong estimation of PMI along with the future advancement measures is also discussed here. In this paper student will also know about the past history and various fields of forensic entomology along with the properties of insects found at the corpses. Despite proved importance and scientific development of forensic entomology insects are still rarely considered as a tool in forensic cases.

Keywords: Forensic Entomology, legal investigation, Post Mortem Interval, Arthropods, Decomposition, challenges, validation etc.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



**A review on
Human Vaginal Matrix and Condom Evidences in Sexual
Assault Cases**



Department Of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Submitted for
Partial fulfillment for the degree of
Bachelors of Science in Forensic Science
2019-2022

Under the Supervision of
Dr. I. Arjun Rao
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

By
Miss Somita Chakraborty
B. Sc 6th Semester
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Forwarding Certificate

This is to certify that **Somita Chakrabortry** of B.Sc Hon's (Forensic Science) VIth semester has worked on review report entitled "HUMAN VAGINAL MATRIX AND CONDOM EVIDENCE IN SEXUAL ASSAULT CASES" under the supervision of Dr. I Arjun Rao for the fulfillment of the degree of Bachelor of Science in Forensic Science.

Date: 05/05/2022

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
Dr. S. Bilaspur (C.G.)
BILASPUR (C.G.)
Assistant Professor & Head

Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur C.G.



विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
Bilaspur (C.G.)
BILASPUR (C.G.)



ABSTRACT

Since sexual assaults have been committed for such a long time, it has led to the evolution of the offender's mind and they have got new ways to prevent themselves from being caught and arrested. As a result, nowadays the assaulters & rapists have started using condoms while committing the assault. In such instances the condom residues found in the vaginal matrix of the victim serve as major evidence since traces of semen or seminal fluid are absent or are rare to detect. After conducting various researches, scientists have found mainly three of lubricants out of which any one type of lubricant may be obtained from the vaginal matrix. After collecting vaginal swabs, chemical composition from the various components like solid particles, lubricants and spermicides can be detected and identified by using various techniques. Several various techniques are used to detect, to identify and to distinguish type of components. In this review paper, two main techniques, Pyrolysis GC-MS and DRIFTS-FTIR have been described which are mainly used for to distinguish between lubricants and other substances used in condom and personal hygiene products and to confirm, the results through the structures of components obtained from PY-GC-MS.

Keywords: Sexual assault, lubricants, spermicides, condom evidence

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A Review on



Examination of Counterfeiting of Indian Currency Notes

Submitted for partial fulfilment of the degree of B.Sc. (Honours) Forensic Science

By

Mr. Sourabh Manhare

B.Sc.(Hon's) Forensic Science

Enrolment No – GGV/19/3036

Roll No- 19205524

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Under the supervision of

DR. SUDHIR YADAV

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G
Certificate

This is to certify that Sourabh Manhare student of B.Sc. Hon's (Forensic Science) VIth semester has worked on review report entitled "Examination of Counterfeiting of Indian Currency Notes" Under the supervision of Dr. Sudhir Yadav for the fulfilment of the Hon' degree of Bachelor of Science in Forensic Science

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय
Guru Ghasidas Vishwavidyalaya
Bilaspur C.G.
Supervisor
Dr. Sudhir Yadav
Assistant Professor

Department of forensic science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Abstract-

This review mainly focuses on counterfeiting of Indian currency. Paper currency notes are the most accepted form used in money transactions. Manufacturing and printing of Fake notes of Rs.100, 200, 500 and 2000 are rapidly degrading economic growth of our country. The use of counterfeit currency is one of the major crises faced throughout the world nowadays. The counterfeiters have become harder to trace because of their use of highly advanced techniques and machinery. It deals with various types of counterfeiting methods like: hand drawn forgery, Process made forgery, Hand engraved blocks, lithographic process, photographic process. A currency note has as many as twenty security features that make the currency notes safer and secure. It has incorporated many new traits like- all new magenta/Stone grey colour of the note, first time usage of dual shift ink colour, Devanagari style used for writing the denomination 2000/500. Micro lettering has also been used widely in the newly introduced currency notes which cannot be easily counterfeit. Detection of currency note is done by image processing method. Comparison of security features between genuine and a fake note by visual observation. Forgery of currency now will be challenging due to the introduction of these security features.

Keywords: Currency, Counterfeiting, Denomination, Security features, Forgery

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



GURU GHASIDAS VISHWAVIDYALAYA

A REVIEW ON

“DEVELOPMENT OF LATENT FINGERPRINTS ON GLOVES”

Submitted for partial fulfillment of the degree of B.Sc. (Honors) Forensic
Science

By

SURAJ KUMAR

B.Sc. (Hon's) Forensic Science

Enrollment No – GGV/19/3040

Roll No- 19205525

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya, Bilaspur C.G.

Under the supervision of

Miss. BLESSI N. UIKEY

Assistant Professor

Department of Forensic Science

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Approval Certificate

This is to certify that SURAJ KUMAR of B.Sc. honors (Forensic Science) Vith Semester worked on review report entitled "**DEVELOPMENT OF LATENT FINGERPRINT ON GLOVES**" Under the supervision of Miss. BLESSI N. UIKEY for fulfilment of degree of Bachelor of Science in Forensic science.

Date: 05/05/2022

Head
Dr. Sudhir Yadav
Assistant Professor
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur C.G.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT

It is natural that fingerprints are deposited on any surface we touched and this theory is also come into force with gloves surface. With evidentiary techniques, the fingerprints are identified on glove surface such as latex, nitride, etc. commonly found at crime scene. The methods and reagents used in porous and non-porous surface namely ninhydrin, cyanoacrylate (superglue) fuming, gentian violet, gelatin lifters and fingerprinting powder methods were used for the identification of fingermarks on the surface of gloves. The gloves made of other materials like plastic, cotton, nylon etc. has also been encountered during crime scene investigation. The examination of fingerprints on fibres and other surface has been used in the gloves made up of it. In experiment, the fibres put in different condition as in low temperature and under the water for different time intervals and the technique used for experiment was the same methods which were used in common disposable gloves surface with some other methods such as small particle reagents, vacuum deposition method etc. The samples were collected from different age owners and keep them preserved for 1 day to 7 days and from 1 week to 6 weeks maximum. The experiments provide different results on different surfaces.

Keywords-Gloves, fibers, fingerprints, porous surface, non-porous surface, crime scene.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्व विद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
कोनी, बिलासपुर - 495009 (छ.ग.)



Guru Ghasidas Vishwavidyalaya
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
Koni, Bilaspur - 495009 (C.G.)

A BRIEF REVIEW ON

**Forensic Perspective And Significance Of Bloodstains Present At
Crime Scene**



**Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.**

(A Central University established by Central University Act 2009 No. 25 of 2009)

Submitted For

**Partial fulfilment of degree of
B.Sc. Hon's in Forensic Science**

By

Tenanjay Kumar

B.Sc. Hon's Forensic Science

Enroll.No.GGV/19/3428

Department of Forensic Science

Under the Supervision of

Dr. Sudhir Yadav

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

**विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)**



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

(A Central University established by Central University Act 2009 No. 25 of 2009)

Approval Certificate

This is to certify that **Tenanjay Kumar** of B.Sc. Hon's (Forensic Science) VIth semester has worked on review report entitled "A review on forensic perspective and significance of bloodstains present at crime scene" under the supervision of **Dr. Sudhir Yadav** for the Fulfilment of the degree of Bachelor of Science in Forensic Science.

Head

Dr. Sudhir Yadav

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur C.G.

Date - 05/05/22

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ANALYSIS OF BLOOD FOR FORENSIC PERSPECTIVE

IDENTIFICATION, SOURCE OF ORIGIN, BLOOD GROUPING
DETERMINATION, BLOOD SOURCE BODY PARTS, ANTI MORTEM
OR POST MORTEM BLOOD, ARTERIAL BLOOD OR VENOUS

ABSTRACT

An important step is the identification and individualization of blood and other body fluids at the crime scene. In case of physical violence like murder, rape, assault, blood is Valuable evidence which helps us in investigation of crime in many ways. For circulation blood is a necessary fluid in our body which is a connective tissue and is made up of plasma and cellular composition. "Heme" is a major component of blood which play significant role in the identification test for blood. Heme is an important component that participates in the identification of blood and this proves that this body fluid is blood. For screening test first we apply presumptive test for blood whether it is blood or not but it has some advantages and disadvantages also so we need confirmatory test which we perform in lab. When it is confirmed that it is blood, then we perform further analysis such as to find out about its source of origin, determination of blood grouping, to find out from which part of the body it is derived. Apart from this whether it is anti-mortem blood or post mortem blood, is it venous blood or arterial blood.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A REVIEW ON
**USE OF MITOCHONDRIAL DNA IN HUMAN
IDENTIFICATION THROUGH SKELETAL REMAINS**



Department Of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Submitted for
Fulfillment of the degree of
Bachelors of Science in Forensic Science
2019-2022

By

Ms. Tulsi Vishwakarma

B.Sc Hons. Forensic Science

Enroll No. – GGV/19/3041

Roll No. 19205527

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur C.G.

Under the Supervision of

Name: Dr. Chanchal Kumar

Assistant Professor

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur C.G.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

APPROVAL CERTIFICATE

This is to certify that TULSI VISHWAKARMA of B.Sc Hon's (Forensic Science) VIth semester has worked on review report entitled "USE OF MITOCHONDRIAL DNA IN HUMAN IDENTIFICATION THROUGH SKELETAL REMAINS" under the supervision of Dr. Chanchal Kumar for the fulfillment of the degree of Bachelor of Science in Forensic Science.

Date: 05/05/2022

Head

Dr. Sudhir Yadav

Assistant Professor & Head
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya
Bilaspur C.G.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT:

Despite the fact that nuclear DNA typing is the gold standard for identification, when it comes to analysis of highly deteriorated samples/remains or ancient skeletal remains it sometimes fail to yield the desired results or a definitive interpretation, in such cases analysis of mitochondrial DNA (mtDNA) can serve as a boon. The human mitochondrial DNA resides inside the mitochondria of cell and replicates independently. It has certain interesting features in comparison to nuclear DNA that contributes to its forensic significance. Some of the features are small genome size, higher copy number, better survivability, unique maternal inheritance & lack of recombination. Due to these features, mtDNA has found its application in forensic identification of skeletal remains recovered in missing person cases, mass graves, disaster victim identification & kinship analysis of ancient skeletal remains. MtDNA variations are not unique in nature & hence doesn't help for individualization, still it could help to support other evidences (Nuclear DNA analysis, anthropological interpretations, historical data etc.) & can serve for circumstantial identification. The arrival of new advanced technologies has enhanced mtDNA's discriminating power & allowed its rapid analysis making it a powerful forensic tool for human identification.

Key Words: Mitochondrial DNA, human identification, skeletal remains, bones, teeth, degraded samples

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A REVIEW ON
CURRENT SCENARIO AND SURVEY OF CYBER CRIME IN INDIA



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Submitted for
Partial Fulfillment for the degree of
Bachelor of Science in Forensic Science

Under the supervision of
Miss. Blessi Uikey
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur

By
Mr. Tushar Bisen
B.sc 6th Semester
Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur



विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G

Forwarding Certificate

This is to certify that **Tushar Bisen** of B.Sc. Hon`'s (Forensic Science) VIth semester has worked on review report entitled "**CURRENT SCENARIO AND SURVEY OF CYBER CRIME IN INDIA**" under the supervision of **Miss. Blessi Uikey** for the Fulfillment of the degree of Bachelor of Science in Forensic Science.

Date: 05/05/2022

Head

Dr. Sudhir Yadav

Assistant Professor & Head

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya, Bilaspur C.G

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT:

The Internet is evolving into the global village of the future's town square. The Internet has now linked us all together like neurons in a huge brain. In reality, the internet has become both a blessing and a curse for people. Nowadays, as the internet's use grows securing our information and data has become a requirement. You should be aware of how to minimise hazards, risks, and cybercrime, as well as be vigilant, proactive, and stay informed on Cyber-Criminals whether you own a company, enterprise, or are simply a daily internet user. As technology advances, man has become reliant on the Internet for all of his requirements. The internet has provided man with quick access to everything while seated in one location. Every potential thing that man can think of can be done through the medium of the internet, including social networking, online shopping, data storage, gaming, online studying, and online jobs. The internet is used in practically all aspects of life. As the internet and its associated benefits grew in popularity, so did the concept of cybercrime. Different types of cybercrime are committed. There was a lack of information about the crimes that may be done through the internet a few years ago. In terms of cybercrime, India isn't far behind the other countries, where the rate of occurrence of cybercrime is constantly on the rise. The majority of cyber-crime instances in India are committed by qualified persons (some cyber-crime demands skills). As a result, extensive understanding of cyber-crime and its prevention is required. Also, in India, the majority of crimes are done due to a lack of awareness or by accident. In this paper, I've covered a variety of cyber-crime categories and cases that are committed due to a lack of information or, in some circumstances, malicious intent. In addition, I proposed a number of preventative steps to prevent these illegal behaviours in everyday life.

Keywords: Cybercrime, Cybercrime – Types, Categories, IT Act, IPC, NCRB , cybercrime Data, Preventions.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Review Paper

Automated Identification System for Species identification
Based on digital images



Department of Forensic science
Guru Ghasidas Vishwavidyalaya Bilaspur (C.G)

Submitted for
In fulfilment of the requirement for degree
Bachelor of Science in Forensic science

By
VINAYAK GUPTA
[Enrollmentno-GGV/19/3453, Roll no -19205529]
Department of forensic science
Guru Ghasidas Vishwavidyalaya Bilaspur (C.G)

Under Guidance of
Dr. Sudhir Yadav
Head of department
Department of Forensic science
Guru Ghasidas Vishwavidyalaya Bilaspur (C.G)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G

Certificate

**This is to certify that Vinayak Gupta student of B.Sc. Hon's (Forensic Science)
VIth semester has worked on review report entitled**

"Automated Identification system for Species identification based on digital images "

**under the supervision of Mr. Sudhir Yadav for the fulfilment of the Hon' degree
of Bachelor of Science in Forensic Science**

Sudhir Yadav
10/05/2022

Supervisor

Sudhir Yadav

Head of Department:-

Guru Ghasidas Vishwavidyalaya Bilaspur C.G

Department of forensic science

Bilaspur, C.G

Head,

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur (C.G.)

Naveen

विभागाध्यक्ष
HEAD

फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT

Wildlife forensic is defined as the branch of forensic deals with the illegal activities taking place in wildlife and its investigation. Wildlife crime is one concerning issue increasing day by day. In order to investigate the crime taking place in wildlife a strict investigation is being followed and the examination of animals is performed which is a necessary step in investigation for which the best method is its species identification and instead of using the time-consuming manual method the automated identification system is being developed and which has increased over last two decades. Automation of data classification is primarily focused on images while incorporating and analyzing image data has recently become easier due to developments in computational technology. And the automated identification system is step by step procedure and this includes 'Image processing, extraction of identical features, which is followed by classifying them into correct categories. And we also discuss about the document provisional identification from emailed photos and assure the integrity of digital images submitted as digital evidences which is based on practical's followed by National Fish and wildlife laboratory of US and Wildlife service of law.

In this paper we will see about recent history of automated species identification system and mainly for categorizing and evaluating their methods. We also compare different methods in step by step procedure of automated identification and classification system of species images. And also focus on some of improvements to be done in this system for making the process of investigation easier.

The aim of writing this paper is to introduce the automated identification system and its impact on wildlife forensic investigation.

विभागाध्यक्ष
HEAD
कोशिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A REVIEW ON
BLOODSTAIN PATTERN ANALYSIS



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G

Submitted for
In fulfilment of the requirement for
Degree Bachelor of Science in Forensic Science
Forensic Science 2019-2022

Submitted by Vishal Kalawat

Roll No. -19205530

Under the Supervision of

Miss Neha Gupta

(Ad -hoc Assistant professor)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्व विद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G

Forwarding Certificate

This is to certify that Vishal Kalawat of B.Sc. Hon's (Forensic Science) VIth semester has worked on review report entitled "BLOODSTAIN PATTERN ANALYSIS" under the supervision of Miss. Neha Gupta (Ad-hoc Assistant professor) for the Fulfillment of the degree of Bachelor of Science in Forensic Science

Date: 05/05/2022

Head of Department


Dr. Sudhir Yadav

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya

Bilaspur
विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)

Page | 3


विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT:

Bloodstain Patterns are the secondary evidence which can be used to investigate and reconstruct the crime scene for the identification of sequence of events occurred before the crime. Impact surfaces are of great importance because it dictates the final appearance of the shape and size of a bloodstain. When the bloodstains are dropped from its source, it comes in contact with various kinds of surfaces and thus forms variety of shapes and size of stains depending on it. with the study of bloodstains with respect to their shape, location, geometry and distribution patterns. It helps in determining what may have happened during the incident that led to the bloodshed. It is considered as a valuable tool for reconstruction of the crime scene. The various mathematical expressions and principles of fluid dynamics are being employed in the interpretation of bloodstains. It is an emerging field of forensic science that has become quite common in the past several years. The present study also ascertains the relationship between I) distance travelled by blood and diameter of bloodstains produced; II) impact angle and width/length ratio of bloodstains.

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A REVIEW ON
"Marital Rape"



Department of Forensic science

Guru Ghasidas Vishwavidyalaya Bilaspur (C.G)

Submitted for fulfillment of the requirement for
degree Bachelor of science in Forensic science

By

VISHAL SINGH

Enrollment no-GGV/19/3043 (Roll no -19205531)

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G)

Under Guidance of

Dr. Sudhir Yadav

Head of department

Department of Forensic science

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G)

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



Department of Forensic Science
Guru Ghasidas Vishwavidyalaya Bilaspur C.G


APPROVAL CERTIFICATE

This is to certify that Vishal singh of B.Sc.honours (Forensic Science) 6th
Semester worked on review report entitled


Marital Rape

Under the supervision of Dr. Sudhir Yadav for fulfilment of degree of Bachelor of
science in Forensic science

Date 05/05/2022


Head,
Dr. Sudhir Yadav
Assistant Professor and Head
Department of Forensic science
Guru Ghasidas Vishwavidyalaya
Bilaspur c.g

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT

The current paper represents a comprehensive review of marital rape including its theory, research legal history e.t.c specifically the review focuses on issues and problem of marital rape. The marital rape has been increased in few years, but the sad thing for India is that till now marital rape has not been criminalized. It, but let's see what decision comes. This paper highlights on the aspect and the existing laws that can be used as a defence by a partner in case of marital rape.

Marriage is a sacred bond that not only ties two people, but also two families together. But if this matrimonial bond without the consent of the people involved in the marriage, then it can turn sour. Looking around the world, law and order has a huge part in defining and limiting norms of human conduct. Under the Indian Penal Code 1860 the laws have been made and suitable punishment for the same has been provided but now most of the people and basically govt. are unable to understand that these laws, this IPC has been made by the British a long time ago. At that time, marital rape was not too much of a problem and hence was not considered a crime which can be one of the reasons why marital rape was exempted under the penal laws.

विभागाध्यक्ष
HEAD
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



A

Review-based study on

“Improvised Explosive Device (IED) Detection”

A

REVIEW REPORT

Submitted to Guru Ghasidas Vishwavidyalaya, Bilaspur for the Partial Fulfillment
of the Degree of **BACHELOR OF SCIENCE**

IN FORENSIC SCIENCE

2019-2022

By

Yogita Dhruway

En. No. : GGV/19/3045 Roll No.: 19205533

Under the Guidance of

Miss Neha Gupta

Assistant Professor (Ad -op)

Department of Forensic Science

Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)



GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR

A Central University

Bilaspur (C.G.)

2022

**विभागाध्यक्ष
HEAD
कोशिक साईंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)**



Department of Forensic Science

GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)

(A Central University established by Central University Act 2009 no. 25 of 2009)



CERTIFICATE

This to certify that **Miss YOGITA DHRUWAY** student of B.Sc. Hon's (Forensic Science) VI semester has worked on review report entitled "**Improved Explosive Device (IED) Detection - A Review Report**" under the supervision of **Miss Neha Gupta** Assistant professor (AD-OP) for the partial fulfillment of the requirement for the Hon's degree of Bachelor of Science in Forensic Science in this University. The review report or any part thereof has not been previously submitted for any other degree or diploma in any University and Institution.

Date: 04/05/2022

Place: GGV BILASPUR, (CG)

Head of the Department

Dr. Sudhir Yadav

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्व विद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)



ABSTRACT

In this project, the pattern of technique to detect improvised explosive devices is considered. improvised explosive device is a type of unusual explosive weapon that can take any form and be operated in a variety of ways. They aimed soldiers and civilians. This project analyzes land and air based remote detection and multi sensor landmine spotting system that will utilize emerging technologies. IEDs can be hidden anywhere: on planted in roads, on animals, type of human bomb. They can be detonated via mobile phones or trip wires. They can be installed everywhere: in a conflict environment or in a big city like capital of country or metro cities. Most methods currently used to protect against these devices rely on mechanical or directed energy detonation. The Phoenix mobile neutron generator can be placed on an autonomous vehicle platform at the head of the convoy. Current X-ray spotting devices cannot detect explosives at distances above a few meters and with a source-detector system moving in relation to the target. This paper presents a method for improvised detection IED (IED) using infrared Thermograph technology (IRT). IED will be detected automatically and precisely so that the IED detection expert is not present. By combining the feature of IRT and image processing technology, the proposed method is highly effective and responsive to detect the presence of hidden IEDs. Captured images are filtered and split to extract heat pattern before making a decision. Based on the experimental result, the proposed system produced about 92% of detection accuracy. The type of explosives used is magnetic explosives which are a type of IED used to target vehicles. An automated approach for simplified detection of IED without the physical presence of a bomb release team. The detection model proposed in this work consists of infrared sensors, GSM module,

विभागाध्यक्ष
HEAD
फॉरेंसिक साइंस विभाग
Department of Forensic Science
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya
बिलासपुर (छ.ग.)
BILASPUR (C.G.)