



**REPORTED POISONING CASES PROFILE OF MARATHWADA
REGION AND FOUR DISTRICTS OF VIDARBHA REGION IN
MAHARASHTRA, INDIA: THE NEED TO INVENT NEW METHODS
FORENSIC INTEREST**

U. D Pawar¹, U. K. Kulkarni², H. A. Deshpande¹, R. K. Pardeshi^{3*}

¹Regional Forensic Science Laboratories Aurangabad, MS, 431 003 India.

²Directorate of Forensic Science Laboratories, Kalina, Mumbai 98.

³Department of Chemistry, Sant Ramdas College, Ghansawangi, Dist. Jalna, 431203,
MS, India.

Article Received on
23 June 2017,

Revised on 14 July 2017,
Accepted on 04 August 2017

DOI: 10.20959/wjpps20179-9942

***Corresponding Author**

Rajendra K. Pardeshi

Department of Chemistry,
Sant Ramdas College,
Ghansawangi, Dist. Jalna,
431203, MS, India.

ABSTRACT

In developed countries the ratio of death due to poisoning is only one to two percent but in developing countries like India, it varies from 15%-30% and which is common cause of death in rural areas as compare urban areas. Poisoning cases can be intentionally or accidental, suicidal poisons are silent major weapons, which can be easily used without violence and often without exciting doubt. The Regional Forensic Science Laboratory, (Govt. of Maharashtra), Chavani Cantonment Area, Aurangabad, India Toxicology department receiving cases from eight districts of Marathwada and four districts of Vidharba region, Maharashtra, India. In Toxicology division viscera, stomach

wash, police seize articles is generally received for chemical analysis from Medical officer after post-mortem in poisoning and suspected poisoning cases, and police authority seize articles. Through the year-2015 (January-2015 to December-2015), total 3585 cases were analyze. In Toxicology division, out of 1153 reported cases in which Human cases 1130 and Animal cases 23 included, Organophosphorus insecticide poisoning 64.78%, Ethyl alcohol poisoning cases 20.46%, Organochloro insecticide poisoning 0.17%, Parathyroid insecticide poisoning 0.86%, Carbamate insecticide poisoning 0.56%, Zinc phosphide 3.55, Aluminum phosphide poisoning 0.43%, Other organic compound 7.28%, Other inorganic compound 1.90% was found in Marthwada region. Keeping in view the above facts and figure the study

was lead and originate that Organophosphorus compound is mainly used during poisoning cases of Marathwada region.

KEYWORDS: Marathwada Region, Vidharba Region, Toxicology, Organophosphorus Insecticide, Organochloro Insecticide, Poisoning.

1. INTRODUCTION

In Marathwada region (include Aurangabad, Jalna, Parbhani, Hingoli, Nanded, Latur, Beed, Osmanabad districts) and Vidharba region (Akola, Buldana, Washim and Yavatmal districts) the economy in rural areas is agriculture based where all kinds of pesticides are easily available because of awesome use of pesticides in agricultural field. Poisoning cases can be liberating intentional or accidental poisons are still weapons, and easily available which can be easily used without violence and often without exciting doubt.^[1]

According to World Health Organization reports every forty seconds a suicide is devoted somewhere in the world one of every three suicides take place in India.^[2] The nature of death cases includes poisoning means homicidal and suicidal, hanging, strangulation, throttling, drowning, electric current injuries, homicidal and accidental burns poisonous animal bite, illness and intoxication and death due to medicinal misuse.^[3] In developed countries the death due to poisoning is only one to two percent but in developing countries like India, it varies from 15%-30% and which is common cause of death in rural areas and compare urban areas.^[4,5]

This outline of poisoning be contingent taking place convenience of fatal insecticide use in that region, culture, occupation, demography, belief, socio-economic status, education and customs of the region as well struggle for in receipt of more yield in the field for that more pesticides are used than the compulsory amount.^[1]

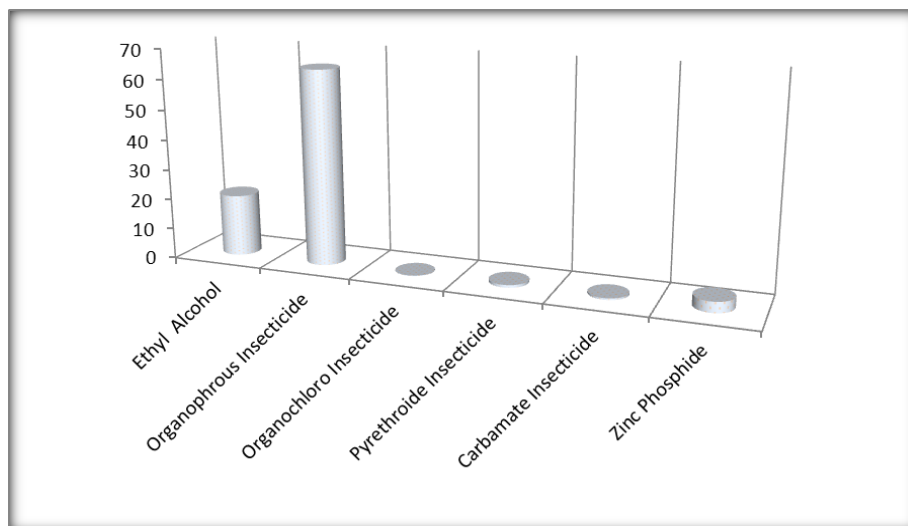


Fig1: Insecticide Percentage of positive cases.

The present study was undertaken to the reported cases profile in Marathwada and Vidharba Region in various insecticide are used the percentage of all insecticide of reported cases in year 2015, January 2015 to December 2015.

MATERIAL AND METHODS

In Toxicology Division, viscera is received from twelve districts of Marathwada and Vidharba region for chemical analysis from Medical Officers after post-mortem in poisoning and suspected poisoning Cases and police authority seize articles. In the year-2015 (January-2015 to December-2015), total 3585 cases were analyzed constitute the study objects for the comparison regarding various poisons^[6] (Table2, fig 1). Total 3585 cases were examined out of which 1153 cases are positive and there district wise distribution is given^[6] (Table 1, Table 2).

Table no.1: District wise Spreading of Positive Cases

Districts	Ethyl alcohol	O.P Insecticides	O.C Insecticides	Pyre Insecticides	Carbamate Insecticide	Znp	AIP	Other Organic	Other Inorganic	Total
Aurangabad	24	96	0	1	2	5	2	9	2	141
Jalna	8	43	0	0	1	4	0	7	2	65
Parbhani	8	46	0	2	0	2	0	11	4	73
Hingoli	9	20	2	0	0	0	0	2	1	34
Nanded	39	71	0	2	0	4	0	13	3	132
Latur	19	32	0	0	0	4	0	4	3	62
Beed	26	60	0	3	0	2	0	6	1	98
Osmanabad	3	22	0	0	0	1	0	3	0	29
Washim	10	24	0	2	0	1	1	6	2	46
Buldhana	17	126	0	0	0	8	2	12	2	167
Yavatmal	56	162	0	0	0	5	0	11	2	236
Akola	17	45	0	0	3	5	0	0	0	70
Total	236	747	2	10	6	41	5	84	22	1153

Table no 2: Insecticide Percentage of positive cases.

Name of Compound	Total Positive Casas	Percentage
Ethyl Alcohol	236	20.46
Organophosphorus Insecticide	747	64.78
Organochloro Insecticide	2	0.17
Pyrethroide Insecticide	10	0.86
Carbamate Insecticide	6	0.56
Zinc Phosphide	41	3.55
Aluminum Phosphide	5	0.43
Other Organic	84	7.28
Other Inorganic	22	1.90
Total	1153	100

Table no.3: District wise Spreading Percentage of various insecticides.

Positive Percentage of compound	Districts											
	Aurangabad	Jalna	Parbhani	Hingoli	Nanded	Latur	Beed	Osmanabad	Washim	Buldhana	Yavatmal	Akola
Ethyl alcohol	17.02	12.30	10.95	26.47	29.54	30.64	26.53	10.34	21.73	10.17	23.72	24.28
Organophosphorus insecticide	68.08	66.15	63.1	58.82	58.73	51.61	61.22	75.86	52.17	75.44	68.64	64.28
Organochloro insecticide	0	0	0	5.88	0	0	0	0	0	0	0	0
Pyrethroide Insecticide	0.70	0	2.73	0	1.51	0	3.06	0	4.34	0	0	0
Carbamate Insecticide	1.41	1.53	0	0	0	06.45	0	0	0	0	0	4.28
Zinc phosphide	3.54	6.15	2.73	0	3.03	0	2.04	3.44	2.17	4.79	2.11	7.14
Aluminum phosphide	1.41	0	0	0	0	0	0	0	2.17	1.19	0	0
Other organic	6.38	10.76	15.06	5.88	9.84	6.45	6.12	10.34	13.04	7.18	4.66	0
Other inorganic	1.41	3.07	5.47	2.94	2.27	4.80	1.02	0	4.34	1.19	0.84	0

DISCUSSION AND OBSERVATIONS

Ethyl alcohol intoxication and suicide under the effect of alcohol cases proportion was more in Latur district (30.64%) compare to other district & it is less in Buldana district (10.17%). Organophosphorus class insecticide very largely used for suicidal purpose in Osmanabad district (75.86%) while in Latur district, suicide due to Organophosphorus compound was only (51.61%). Organochloro insecticide poisoning cases proportion of Hingoli district (5.88%), which is maximum in all districts. Poisoning due to pyrethroid insecticide is very much in Washim district (4.34%) whereas very low proportion cases of pyrethroid poisoning reported in Aurangabad district (0.70%). Carbamate insecticide poisoning occurs maximum in Latur district (6.45%) whereas very low proportion cases of Carbamate poisoning reported in Aurangabad district (1.41%). Zinc phosphide poisoning is 7.14 % in Akola district, which is maximum in all districts. Suicidal poisoning percentage due to other organic like house hold poisons (ex. floor disinfectant, mosquito repellants) is more in urban cities where literacy rate is more. In Parbhani district other organic poisoning is 15.6%, moderately higher than other district. Carbamate insecticide infrequently used for suicidal purpose. The major insecticide used for suicide in Marathwada and Vidharba region appears to be pesticides Organophosphorus (64.78%) and Ethyl alcohol (20.46%).

CONCLUSION

The present study showed that importance was suggestively and positive reported cases in the various forensic laboratories in all India. The present study also showed that the organophosphorous compound insecticides are highly used in Marathwada and Vidharba region, Maharashtra, India. Due to Homicide Suicide Deaths ratio in which Insecticide used highly.

The Doctor when committed any postmortem then they note in there autopsy whether they suggest the insecticide like smell or no particular smell. Then the forensic scientist investigate by two groups the I st one is poisoning history II nd one is Non Poisoning history .In this our present study we examined and report the Poisoning history cases 888 of human cases and Animal 23 cases out of 1986 cases. The Non poisoning cases we examined and report 242 cases out of 1599 cases. So we finally report 1153 cases out of 3585 cases showing in figure 2.

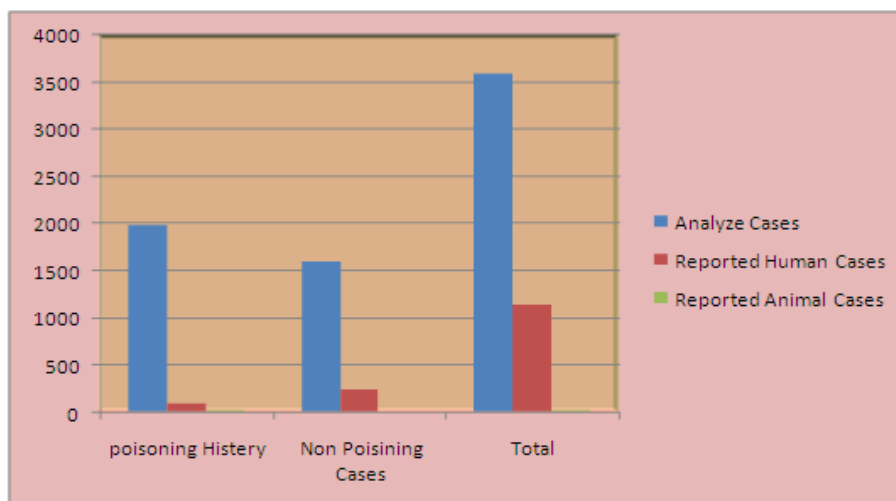


Fig 2: History of Poisoning.

RECOMMENDATIONS

- 1) Indian government made Law's related to storage and selling of insecticides and poisonous compound should be strictly implemented.
- 2) Awareness program community base Intentional program should be implemented for farmers, students and married woman's and deposed persons to come out from depressions.
- 3) Safety and awareness camp should be taken by the insecticide manufacturer for farmers.
- 4) Highly need the Development of new methods in forensic interest.
- 5) In last decade there is heavy draught in all Marathwada and vidharba regions so mainly the Farmer Suicide deaths increased.

ACKNOWLEDGEMENT

The authors are thankful to S P Yadav Director General and Dr. K V Kulkerni, Director, Directorate of Forensic Science Laboratories, Mumbai, Home Department. Government of Maharashtra, India for his valuable suggestions and keen interest shown in this research work.

REFERENCES

1. Saxena V, Atal DK, Das S. Retrospective analysis of pattern of poisoning in Uttarakhand. *JIAFM*, July-Sept 2014; 36(3): 230-3.
2. WHO report, www.who.int/mental_health/prevention/suicide/in.
3. Sharma DC, Bhullar DS. Profile of poisoning cases reported by State Chemical Laboratory, Punjab. *JPAFMAT*, 2005; 5.

4. Wikipedia Suicides in India.[https://en.wikipedia.org/wiki/suicide.in india](https://en.wikipedia.org/wiki/suicide.in_india).
5. National Crime record in India.www.ncrb.gov.in.
6. Annual Report of Toxicology Section, 2015.