

## Physico-chemical monitoring and toxicity assessment of lead in air samples of Bhopal

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### ABSTRACT

The quality of air of Bhopal city is assessed for common pollutants present in the air. These pollutants causes harmful effects on the environment as well as human beings. Ambient air monitoring is carried out at various places to control the strategy for increasing pollution of Bhopal. The analytical work is carried out on calorimeter. High volume air sampler was used for air monitoring studies.

**Key words:** Toxicity, physico-chemical monitoring, air pollution.

### INTRODUCTION

Due to industrialization and urbanization, Bhopal city is undergoing expansion at a very fast rate. Air pollution shows no barrier of caste, creed, sex, living and non-living, and effects every one equally. Some chemicals at certain concentration are harmful at one location but are quite harmless in the same concentration at another point. Thus, there is a need for measuring as well as identifying the chemicals polluting the air for the future generation.

#### Study area

While selecting the air monitoring sites the points taken in consideration are the points of maximum pollution, the points of minimum and maximum pollutant concentration, the height of monitoring site (5 to 10 metre) and the site should be easily accessible by public transport system.

### MATERIAL AND METHODS

The monitoring was done once a week at each station between 9am - 5pm. The samples were collected and stored in an ice box totally preserved during its transportation and were analyzed in laboratory as per APHA. In the present paper the results of Pb are considered which are shown in Table 1.

### RESULTS AND DISCUSSION

It is concluded from the present study, that the concentration of Pb in the air was higher at Tajul Masjid area as compared to Hamidia Road, Railway station, due to dense traffic. The diesel operated vehicles passes through these stations at a very high rate yielding high exhaust emission.

It is seen that at Hamidia Road, the Pb content is different at morning, afternoon and

**Table - 1: Pb concentration ( $\mu\text{g}/\text{m}^3$ )**

Station	Shift	June 2003		Oct. 2003	
		1	2	1	2
Hamidia Road	M	0.025	0.389	0.410	0.371
	A	0.048	0.402	0.551	0.529
	E	0.036	0.002	0.005	0.002
Tajul Masajid area	M	0.350	0.361	0.430	0.412
	A	0.354	0.401	0.482	0.491
	E	0.019	0.001	BDL	0.008

M = monitoring, A = Afternoon, E= Evening.

evening respectively. The Pb content is higher at noon compared to morning and evening as traffic is dense in the noon. The same thing was observed at Tajul masjid area.

#### Conclusion

It is concluded that in urban area, the air pollution is mainly due to the automobile exhaust at Bhopal, the road traffic volume is increasing due to increase in movement of men and material.

#### REFERENCES

1. Koller, L.D., Roan, J. and Issacson, Kervliet, N. *Environ. Res.*, **19**: 177 (1979).
2. Kudesia, V.P., *Pollution Everywhere*, **7**: 125 (1990).
3. Nationwide Inventory of Air Pollutant Emmission (1968).
4. National Air Pollution Control Administration Publication, AP -73 (1970).