SUMMARY AND CONCLUSION

The main objective of the present investigation was to screen plant populations of *Azadirachta indica*, *Ficus glomerata* and *Nerium odorum*, growing in polluted areas of Ahmedabad city to evaluate the below listed parameters.

1. Determination of the magnitude of damage inflicted on plants by pollution under different environmental conditions.
2. Assessment of pollution abatement capabilities.
3. Changes in soil properties of polluted areas.
4. Accumulation of toxic elements in the foliage.
5. Morphological and physiological changes in plants due to pollutants.
6. Adaptive significance of these changes.
7. Identification of the tolerant species, which could be used as scavenger plants to minimise the quantum of pollution in atmosphere.
8. Identification of morphological and physiological make up of a plant, suited for such tolerance.
9. Detecting the indicator plants, which show different symptoms of damage caused by pollutants.
The investigation was made at two sites, polluted by automobile emissions and thermal power house emissions. From careful observation and interpretation of the results obtained, the following conclusions could be drawn.

Though, the rate of air pollutants' emission from the source remained constant, their concentration in ambient air varied with meteorological conditions of the season. The concentrations of pollutants were observed at their peak in winter conditions owing to the greater atmospheric stability and decreased dispersion. However, in any given season concentrations of pollutants (SO₂, NO₂ and SPM) were more in polluted areas. These factors have also influenced the deposition of pollutants on the plants, resultant effect being noted as high foliar dust during winter.

Morphological characters of leaf also played an important role in capturing the pollutants. Flous accumulated maximum dust with its suitable leaf architecture and at the same time showed maximum percentage injury indicating the effect of pollutants. This suggested the significance of using plants as living filters of pollution and their use in phytomonitoring of environment through detecting characteristic injury symptoms. Dust collecting efficiency of Azadirachta, with compound leaves was rather poor, but can filter out significant amounts of particulates and gases when air current passes through its dense foliage. No significant accumulation of trace elements
was observed in soil or leaves and this was thought to be due to interactions of these metals and environmental factors, which influence the uptake of plants or quick metabolism. Soil characters were also unaffected.

Stomata were found to have an important role in determining the pollutant absorption and the response of plants. This was reflected in the high foliar injury of Ficus, which had high stomatal frequency, the factor influencing the fluxes of pollutants into leaves and less injury in Azadirachta and Nerium.

These differences in tolerances of plants to pollutants under similar biophysical conditions were also reflected in fine differences in biochemical parameters. Azadirachta showed increased amounts of metabolites in response to pollutants, which seems to be an adaptive measure.

Metabolite pools of carbohydrates, proteins, RNA and proline were enriched in Azadirachta, despite the degree of pollution, compared to Ficus or Nerium, indicating it's resistant nature. It also showed less injury compared to Ficus. This ability may be due to efficient detoxification and metabolism of pollutants and the quick release of metabolites (sugars and proteins) into the system to counteract the pollution damage. Enzyme peroxidase was also observed in high levels in Azadirachta, which detoxify the pollutants and provide protection.

How does it detoxify?
So the significance of *Ficus* as indicator plant and *Azadirachta* for the abatement purpose is emphasized. Being common, tropical, evergreen tree and sensitive to pollutants exhibiting characteristic injury symptoms. *Ficus* is extremely useful in phytomonitoring and on the other hand resistant and adaptable plants like *Azadirachta* can be used for abatement of air pollution and improving air quality.