IJPS INTERNATIONAL JOURNAL OF PLANT SCIENCES
Volume 8 | Issue 1 | January, 2013 | 124-126

RESEARCH ARTICLE

Changes in the micromorphology of two common roadside dicotyledonous plants under the influence of automobile pollution along the National highway- 58

■ RAHUL RATHI AND NARESH KUMAR

SUMMARY

This study deals with the impact of auto-emission on stomatal frequency, epidermal cells and stomatal index of two common dicotyledonous roadside plants *i.e- Eucalyptus* spp. and *Mangifera indica* L. Stomatal and epidermal cells frequency and stomatal index show drastic reduction at different distances of high polluted site(HPS), medium polluted site(MPS) and low polluted site(LPS) from National highway- 58. The data collected from these plants show that *Eucalyptus* spp. were slightly tolerant to auto-emission pollution in comparison to *Mangifera indica* L.

Key Words : Auto-emission pollution, Stomatal frequency, Stomatal index, High polluted site(HPS), Medium polluted site(MPS), Low polluted site(LPS)

How to cite this article : Rathi, Rahul and Kumar, Naresh (2013). Changes in the micromorphology of two common roadside dicotyledonous plants under the influence of automobile pollution along the National highway- 58. *Internat. J. Plant Sci.*, **8** (1) : 124-126.

Article chronicle : Received : 13.08.2012; **Revised :** 26.09.2012; **Accepted :** 17.11.2012

Exhaust gases from automobiles contribute significantly to air pollution. The major pollutants emitted from the automobiles are particulate matter, SO_2, NO_X, CO, and unburnt hydrocarbons which affect the stomatal opening, closing or impact on guard cells is more than other organelles since most of the gaseous exchange for all the biochemical processes takes place through these micropores because foliar surface is the direct phase of contact between plant and atmosphere. The amount of air pollutants absorbed primarily on the size and number of stomata in the leaves. It has been suggested that stomatal response may be a key factor in determining the sensitivity of plant species to automobile pollution. Many workers reported reduction in stomatal dimensions and stimulation in the number of stomatal and epidermal cells in plants growing in the vicinity of automobile pollution *viz.,* Salgare and Thorat (1990); Kulshrestha *et al.* (1994); Johari and Sneh Lata (1999); Pal *et al.* (2000); Kazmi *et al.* (2004) .

MEMBERS OF THE RESEARCH FORUM

Author to be contacted :
RAHUL RATHI, Department of Botany, C.C.R (P.G) College, MUZAFFARNAGAR (U.P.) INDIA

Address of the Co-authors:
NARESH KUMAR, Department of Botany, C.C.R (P.G) College, MUZAFFARNAGAR (U.P.) INDIA

MATERIALS AND METHODS

This investigation was carried out on two common roadside dicotyledonous plants *i.e- Eucalyptus* spp. L. and *Mangifera indica* L. along with National highway- 58, to assess the effect of auto-emission on stomatal and epidermal cells frequency and stomatal index. The sampling site Sa taken as highly polluted site (HPS), situated at Modipuram (N.C.R), where the micromorphological parameters were studied adjacent to highway (Sa_1); 50 meter away from highway (Sa_2); and 150 meter away from highway (Sa_3). Two other sites of study are village Bhainsee (Sb) adjacent to N.C.R, which has been taken as medium polluted site (MPS) and village Barla (Sc), a low polluted site (LPS). Controlled conditions have been taken at every site which was 1.5 km away from the highway *i.e-* Sa, Sb and Sc, respectively.

The materials collected from different sites were under investigation and marked 3 months before at the same height