

ABSTRACT

Environmental pollution has become a major problem of urban areas of growing nations. Air pollution increased due to urbanization and industrialization. Environmental related problems in Pakistan due to combine effects of industrialization and vehicle emission. Lahore is second largest city of Pakistan and known as city of gardens is now facing tremendous stress of environmental pollution. The key contributions of atmospheric pollution are vegetation loss, stomatal damage, leaf injury, decrease photosynthetic activities and reduction of leaf area and leaf number. Automobile pollutants released from heavy traffic composed of CO, oxides of nitrogen, unburned gasoline, CO₂, Hydrocarbon, particulate matter, oxide of sulfur and heavy metals. *Alstonia scholaris* L. known as Dita dark evergreen tree cultivated in Pakistan as ornamental purpose along the roadsides of Lahore city because of its tolerance toward air pollution. In this study ascorbic acid content, pH of leaf extract, total chlorophyll content, dust content, leaf area, tolerance to air pollution and gene expression of *Alstonia scholaris* L. grown along the polluted sites of Lahore city were determined and compared with the control plant (20 km away from polluted sites). The maximum dust content was accumulated in *Alstonia scholaris* L. collected from R1 sample (Mall roadside) whereas the minimum dust content noticed in the leaves of control site. Reduction in leaf area was observed of *Alstonia scholaris* L. grown along roadsides as compared to control. High value of ascorbic acid content, relative water content and APTI were observed in plants planted along polluted roadsides as compared to control plants. Whereas low of the leaf extract was high in the plants of *Alstonia scholaris* L. planted on different polluted roadsides of Lahore city as compared to control plants. Maximum Air pollution Tolerance index (APTI) was observed in sample R4 plants planted along wahdat road means that these plants shows higher tolerance against air pollution. In present investigations, expression of GRF5 and Phantastica genes in *Alstonia scholaris* L. planted along polluted roadsides of Lahore city were studied. DNA isolation was performed by using CTAB method. PCR product was analyzed by using 1% agarose gel. Results showed that expression of genes are low in sample collected from polluted site as compared to control. Due to low expression of genes altered the morphology of plants under the influence of air pollutions. Hence it is concluded that air pollution has deeply effect on the genomorphic character of *Alstonia scholaris* L. planted along polluted site.