Abstract

Air pollution is a worldwide environmental negative phenomenon affecting global climate, humans, animals and plants. Vehicle fumes as a leading major source among smoke producing air pollutants, was examined in this study. Nairobi, a mega-city with increasingly high levels of air pollution was studied with special emphasis on one of its roads, i.e. Waiyaki Highway. This road was investigated for scientific understanding of effects of vehicle fumes on plants stomata behavior and distribution. Hotspots of air pollution averaging PM10 42.6µgm/M3 along this Highway were identified as locations for monitoring of effects of air pollution on plants. A control (at NARL) had similar environmental conditions but no significant air pollution (measured air pollution at environment of control at NARL, had PM10 0.6µgm/M3). The control experiment was protected from air pollution related to vehicle fumes by lengthy distance away from the road plus vegetation thriving in between. Sites selected for treated experiments were: ICEA buildings, ABC Place, and Kangemi market. These hotspots were also evidenced by some existing trees/or plants which were moribund and all trees at the sites had darken tree trunks and leaves due to air pollution. Lycopersicon esculentum Mill. (1691), tomato plant that highly susceptible to air pollution was exposed to air pollution at selected sites. The experiments looked at distribution of stomata account after 3 months. Collected data was analysed using Poisson distribution in Genestat software. Means were separated by use of Least Significant Difference (LSD) or Tukey in Genestat software. The stomata were located under leaf mainly with plants in treated experiments exposed to air pollution. Significantly (at $F_{2,6}=3.37$, P