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Title: Influence of air pollution on growth of tree species of roadside plantations in and around Ranchi

Publisher: Birsa Agricultural University, Kanke, Ranchi, Jharkhand

Language: en\_US

Type: Thesis

Pages: 69

Agrotags: null

Keywords: Influence of air pollution on growth of tree species of roadside plantations in and around Ranchi

**Abstract:** Environmental pollution is one of the major problems threatening the growing population of the world during the past decades due to the rapid industrialization and urbanization. These two factors have resulted in profound deterioration of India's air quality. The scientific evidences have proved that vehicular exhaust is a complex mixture of hazardous particles and vapours. Diesel and petrol exposure poses a significant and avoidable increase in human heart attack. The environment in which we are living is having major constituent's viz. soil, water and air. An ideal environment is one which should have fresh air, pure water and noise free surroundings. Out of which, the air is a limiting factor in present day life in most of the cities of India. Vehicular exhaust is the primary cause (60 %) of air pollution in urban areas, followed by industries (20-30 %) and fossil fuel. The principle pollutants emitted by the vehicles are carbon monoxide, hydrocarbon, oxides of nitrogen and suspended particulate matter. After the creation of Jharkhand state the vehicle number has increased tremendously in and around Ranchi city, which has resulted increased air pollution. The forest department has planted many species all along the roadside in various phases on almost all-important roads around Ranchi city. Like human being trees are also affected by air pollution, i. e. reduction in growth and abnormality in phonological features. In this respect a study was carried out to find out the growth of six trees species viz. *Acacia auriculiformis*, *Cassia siamea*, *Dalbergia sissoo*, *Tectona grandis*, *Gmelina arborea* and *Terminalia arjuna* on 10 locations (Morabadi Maidan area, Dipatoli Cantonment area, Ranchi Airport Area, Ranchi-Pithouria Road, Ranchi-Ramgarh Road, RMCH campus Area, Ranchi-Tata Road, Ranchi-Muri Road, Ranchi-Khunti Road and Ranchi-Gumla Road). The data on different parameters were collected from April 2006 to June 2006. Perusal of data has indicated following- (i) The height as well as diameter growth of *Acacia auriculiformis* & *Cassia siamea* were less affected and their survival percentage on ii all selected study sites was more than 50 %. Species like *Tectona grandis*, *Dalbergia sissoo*, *Gmelina arborea* were found highly affected due to heavy dust load on the leaf/leaflets. (ii) All the six selected tree species seems to be affected due to heavy dust pollution along the highway like Ranchi-Tata road, Ranchi- Ramgarh road & Ranchi-Pithoria road. So it may be concluded that for more survival, height & diameter growth, species like *Acacia auriculiformis* & *Cassia siamea* may be planted along the road side to check the heavy dust load along the highway. (iii) Abnormality in growth of selected tree species was observed by number of branches, average leaf/leaflet area and percentage reduction from standard leaf/leaflet area. Species like *Acacia auriculiformis* and *Cassia siamea* have given significant number of branches towards and away from road side, while *Tectona grandis*, *Dalbergia sissoo*, *Gmelina arborea* and *Terminalia arjuna* produced lesser number of branches. (iv) Percentage reduction from standard leaf/leaflet area also affected by heavy dust pollution and it was maximum in the case of *Tectona grandis*, all along the highways, followed by *Cassia siamea*, *Dalbergia sissoo* and *Terminalia arjuna*, have shown lesser reduction from standard leaf/leaflet area. (v) All the highways like Ranchi-Tata road, Ranchi-Ramgarh road, Ranchi-Pithoria road, Ranchi-Muri road, Ranchi-Khunti road & Ranchi-Gumla road are observed to be highly polluted zone in descending order based on growth performance, abnormal branching behavior and dust load on unit area of leaf/leaflet of tree species. However, areas like Dipatoli Cantonment area & RMCH campus area are less affected.

**Description:** Influence of air pollution on growth of tree species of roadside plantations in and around Ranchi

**Subject:** Forest Business Management

**Theme:** Influence of air pollution on growth of tree species of roadside plantations in and around Ranchi

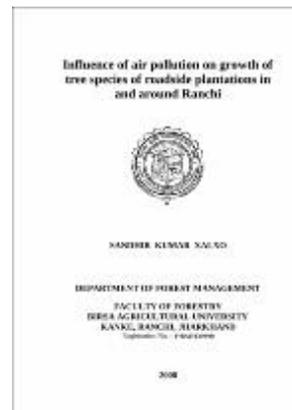
**These Type:** M.Sc

**Issue Date:** 2008

**Appears in Collections:** Thesis (/handle/1/93550)

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