

Preface

Plants can be regarded as life-support equipment, because they can provide the oxygen necessary for respiration to living organisms, alleviate global warming by the absorption and fixation of atmospheric CO₂, and purify a polluted atmosphere by the absorption and/or adsorption of air pollutants. However, anthropogenic emission of pollutants into the atmosphere causes air pollution and its adverse effects on many plant species all over the world. This means that we are turning off this life-support equipment by ourselves. For sustainable development, therefore, we must reduce the emissions of air pollutants into the atmosphere and protect plant ecosystems against air pollutants.

In Asia, air pollution is one of the most serious environmental problems in the twenty-first century. Recently, transboundary air pollution has become an environmental problem, especially in East Asia. In this region, there is a possibility that gaseous air pollutants such as photochemical oxidants, acid deposition, and aerosols cause detrimental effects on crops, trees, and natural vegetation. In Japan, experimental studies on the effects of air pollutants on crops and trees, and field surveys of air pollution and its effects on trees in forest ecosystems have been conducted since the 1970s and 1990s, respectively. Recently, Chinese researchers have actively studied the effects of ozone, a main component of photochemical oxidants, on crops and trees. However, limited information is available on the effects of air pollutants on plants in other Asian countries.

The aim of this book is to provide information on air pollution in East Asia; information on the effects of gaseous air pollutants, acid deposition, and aerosols on Asian crops and trees; and case studies of air pollution in Japanese forests. This information should be of interest to environmental scientists, plant scientists, government officials, industrialists, environmentalists, undergraduate and graduate students, and others concerned with the air pollution problem in Asia and other parts of the world.

I hope that this book will contribute both to an increased awareness of the air pollution problem and to the protection of plants against air pollutants in Asia.

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