

Plant responses to SO₂ pollution and its amelioration

■ AWANISH

SUMMARY

Sulphur dioxide is a major air pollutant and it enters in to plants through stomata. Sulphur dioxide affects a number of plant processes in a variety of ways. Sulphur dioxide gas dissolves in extra cellular fluid of plants and reacts with plant materials to produce ionic species and free radicals, which are generally more reactive than sulphur dioxide. This dissolved sulphur dioxide is potentially capable of behaving as an oxidant and reductant depending upon redox potential of the system. As a result of reaction of these ionic species with lipid and proteins in cell walls and membranes, chain reactions are initiated and giving rise to more free radicals such as superoxides, single oxygen, hydroxyl ion (OH⁻) etc. So, the level of ascorbic acid, β-carotene and phenolic compounds increase which provide protection against sulphur dioxide phytotoxicity by removing these free radicals. Exogenous application of antioxidants as ascorbate and benzoate and nutrient supplementation may inverse/ mitigate the effect of sulphur dioxide pollution.

Key Words : Sulphur dioxide pollution, Effects on plants, Amelioration

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← **AUTHOR FOR CORRESPONDENCE** →

AWANISH, Department of Botany, C.C.R. (P.G.) College, MUZAFFARNAGAR
(U.P.) INDIA