

Assessing the impact of ambient ozone (O₃) on the growth and yield of potato genotypes (*Solanum tuberosum* L.) by using exposure indices over the high altitude of western Ghats location in Southern India

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ABSTRACT : Raising levels of tropospheric ozone (O₃), acts as a secondary pollutant and green - house gas which is a silent threat as well as one of the biggest challenges for the decrease in agricultural production. The diurnal and seasonal variation characteristics of ambient ozone (O₃) and its precursor NO_x was investigated by their continuous measurements at ISRO-Climate Change Observatory situated in a high altitude Western Ghats location of Ooty. The impact of ambient O₃ on the growth and yield characteristics of various potato genotypes were assessed by the calculated higher ozone exposure indices AOT40 and SUM60 than critical levels by showing “latent injury“ in the form of yield reduction (4.56 - 25.5 %) in potato genotypes. The impact of three elevated O₃ levels (100, 150 and 200 ppb for 4 hd⁻¹) on ten potato genotypes was done by fumigation under controlled open-top chamber during its critical stage namely the tuber initiation stage resulted that Kufri Surya proved to be moderately resistant by recording the highest yield.

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