

Effect on tomato (*Solanum lycopersicum*) cultivars

The net impact of combined stress on plant growth

The table shows the effect of ozone stress and bacterial infection on tomato cultivars

Crop: Tomato (*Solanum lycopersicum*) cultivar Roma and Moneymaker
Bacteria: *Xanthomonas vesicatoria*
Stress 1: Ozone stress- Ozone treatment concentrations of 10 (low), 120 (high) ppb
Stress 2: Inoculation via immersing leaves in bacterial solution containing 5×10^6 CFU/ml of *X. vesicatoria*
Stage of the plant: Vegetative

Cultivars	Stress treatments	Plant response to stress
		Type C parameter*
		Level of TRAPS (nmoles mg ⁻¹ protein)
Roma	Low Ozone (10 ppb) + <i>X. vesicatoria</i>	167
	High Ozone (120 ppb) + <i>X. vesicatoria</i>	49
Moneymaker	Low Ozone (10 ppb) + <i>X. vesicatoria</i>	151
	High Ozone (120 ppb) + <i>X. vesicatoria</i>	156

TRAPS-Total peroxy radical-trapping antioxidant capability. A low TRAP value indicates oxidative stress or increased oxidative damage

B. Interaction between ozone and bacteria

The table shows the interaction between ozone and bacterial infection in relation disease progress

Cultivars	Stress treatments	Plant response under combined stress
		Type B parameter*
		AUDPC
Roma	Low Ozone (10 ppb) + <i>X. vesicatoria</i>	6.9
	High Ozone (120 ppb) + <i>X. vesicatoria</i>	40
Moneymaker	Low Ozone (10 ppb) + <i>X. vesicatoria</i>	22
	High Ozone (120 ppb) + <i>X. vesicatoria</i>	32

AUDPC-Area under disease progress curve

Reference-

Romero AM, Menendez AI, Folcia AM and Martínez-Ghersa MA (2020). Tolerance to ozone might impose restrictions to plant disease management in tomato. *Plant Biology Journal* 22: 47-54.

Note:

Values are presented as it is from the source article without subjecting to the calculation.

* - For more information on parameter classification, please refer to the 'methodology' tab.

The inference from the study: Romero et al., 2020 investigated the effect of increased ozone levels on the severity of a bacterial leaf spot disease in tomato cultivars Roma and Moneymaker. Both the cultivars differ in their tolerance to ozone with Roma being sensitive and Moneymaker tolerant to ozone. The authors observed that ozone stress (120 ppb) increased the severity of bacterial infection in both the cultivars plants. In the case of Moneymaker, the extensive infection

was observed even at a low level of ozone (10 ppb). However, the oxidative damage indicated by TRAPS level was found to be lower in Moneymaker as compared to that observed in Roma. **The study, thus, indicates that combined ozone stress and *X. vesicatoria* infection was more detrimental to both cultivars of tomato as compared to the individual stresses and Moneymaker was relatively less severely affected by the combined stress as compared to Roma.**