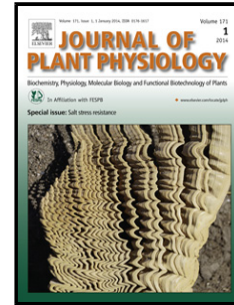


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**Recovery of tomato (*Solanum lycopersicum* L.) leaves from continuous light induced injury**

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**Abstract**

Continuous light (CL) causes leaf injuries in tomato plants, but very little has been done to study the nature of recovery from these leaf injuries. To facilitate this, tomato plants (*Solanum lycopersicum* L. cv. 'Aromata') were first exposed to CL for 11 days in order to study the development of the leaf injuries. Afterwards, the plants were exposed to a photoperiodic treatment with a dark period of eight hours to study the nature of recovery of the leaves. Plants were grown in two photoperiodic treatments in climate chambers; a control treatment with a 16/8 h light/dark and a CL treatment with 24 h light. The two treatments had different light intensities to maintain a similar daily light integral ( $15 \text{ mol m}^{-2} \text{ d}^{-1}$ ). The temperature and humidity were adjusted to maintain a similar vapor pressure deficit (VPD) of 1 kPa in the two treatments. After 11 days of CL, 12% of the total leaflet area appeared light green in spots on the leaf surface aligned with lower total leaf chlorophyll content. The light green spots partially reversed while the leaf chlorophyll content increased to similar levels as seen in control leaves after 11 days of recovery. The CL significantly reduced the stomatal conductance ( $g_s$ ) and net photosynthesis ( $P_N$ ) and altered the carbohydrate content in the leaves. These negative effects of CL were also rapidly restored to the control levels when the plants were returned to the 16 h photoperiodic conditions. The results demonstrate that, though leaf discoloration is only partially recovered, tomato plants can be grown for 11 days in CL

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