

# The Effects of Photoperiod and Light Intensity on the Sporulation of Brazilian and Norwegian Isolates of *Neozygites Florida*.

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## Abstract

The objective of this study was to determine the effects of light intensity and duration (photoperiod) on the sporulation (discharge of primary conidia) and conidia germination (from non-infective primary conidia to infective capilliconidia) of *Neozygites florida* isolates from *Tetranychus urticae* originating from Norway and Brazil. Two light intensities (40 and 208  $\mu\text{mol m}^{-2} \text{s}^{-1}$ ), three photoperiods (24 h of continuous light (24 h D), 12 h of darkness followed by 12 h of light (12 h D: 12 h L) and 24 h of continuous darkness (24 h D)) and two temperatures (18°C and 23°C) were tested. The fungus produced similar amounts of primary conidia and capilliconidia at 12 h D: 12 h and 24 h D, indicating that the fungus discharges almost all of its conidia during the first 12 h of darkness. Light had less of an effect on the production of primary conidia than on capilliconidia formation. At 24 h L, capilliconidia formation was significantly lower for all tested light intensities, temperatures and isolates compared to 12 h D: 12 h L and 24 h D. At both light intensities, 24 h L resulted in a significantly lower capilliconidia formation for the Norwegian isolate compared to the Brazilian isolate. Our data suggest that, even though 24 h L reduced sporulation, some capilliconidia formation may occur at the low light intensities found on the underside of strawberry leaves during parts of the day as well as the top of a non-shaded strawberry leaf during the dim evening and morning hours in the tropics and during the dim, long summer days in temperate regions.

**Keywords:** Spider-mites *Tetranychus* spp Entomopathogenic fungi Microbial control Photoperiod Temperature.

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