

## Effect of temperature, relative humidity and light on lesion length due to *Alternaria porri* in onion

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**SUMMARY:** Infection due to *Alternaria porri* on onion was observed to occur over a temperature range of 15°C to 35°C, with maximum infection at 25°C. However, there was no infection at 40°C. The infection of onion plants was maximum when inoculated leaves were incubated under continuous light (24 h) followed by alternate darkness and light. Least infection was obtained when it was incubated under continuous darkness (24 h). The optimum relative humidity for the infection of onion by *Alternaria porri* was found to be 95 per cent, though disease development occurred over a range of 75 to 100 per cent relative humidity.

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Infection of onion,  
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Onion (*Allium cepa* L.) is an important bulb crop of India belonging to the family Alliaceae. In India, the onion crop occupies an area of 0.4546 million hectares with a total production of 6034.25 million tonnes (Anonymous, 2005-06). In Andhra Pradesh, it is grown over an area of about 0.022 million hectares with an annual production of 197 million tonnes (Anonymous, 2005-06). In Guntur district, of Andhra Pradesh it is cultivated in an area of 0.001239 million hectares with an annual production of 0.019680 million tonnes (Anonymous, 2006). Several factors contribute to the low productivity of onion. Diseases like purple blotch, downy mildew, Stemphylium blight, basal rot and storage rot are known to be more significant in reducing the production of the crop. Of these, purple blotch is the most destructive disease, prevalent in almost all onion growing areas of the world causing heavy losses under field conditions. In Guntur district, the disease has become prevalent causing heavy losses to onion farmers in recent times. Present investigation was carried out to find the effect of temperature, relative humidity and duration of

length of purple blotch severity on onion.

### EXPERIMENTAL METHODOLOGY

To study the effect of temperature on the infection of onion by *Alternaria porri*, experiment was conducted by using detached onion leaves. Onion leaves of 8 to 9 cms length were allowed to float on 5 per cent sucrose solution (20 ml) in a bottom half of a Petri dish. These leaves were inoculated by spraying them with the conidial suspension ( $2.8 \times 10^2$  spores/ml) and then incubated for about 7 days in BOD incubators set at different temperatures viz., 15°C, 20°C, 25°C, 30°C, 35°C and 40°C. Three replications were maintained for each temperature and three leaves constituted one replication. After incubation, the length of the lesion was recorded for each temperature level.

In order to study the infection of onion by *Alternaria porri* under different regimes of light and darkness, detached onion leaves techniques as described earlier was followed with different regimes of light at room temperature ( $28 \pm 1^\circ\text{C}$ ) as given below:

– Continuous light 24 h.

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