



Research Article

Effect of host age and inoculum concentration on disease severity of purple blotch of onion caused by *Alternaria porri*

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ABSTRACT

In the present study onion plants at different ages viz., 15, 30, 45, 60 and 75 days were inoculated separately with conidial suspension of *Alternaria porri*. With the increase in the host age there was a significant increase in disease development. Highest per cent disease index (54.43) was recorded on plants inoculated at 60 days followed by plants inoculated at 75 days (51.75). Plants inoculated at 45 days (36.25) and 30 days (28.83) showed less per cent disease index relative to 60 days and 75 days old plants. Plants inoculated at 15 days showed the least per cent disease index (21.08). With the increase in the inoculum concentration, there was a significant increase in disease development of *A. porri*. Highest per cent disease index (57.03) was recorded on plants inoculated with inoculum of 10^8 spores/ml concentration followed by plants inoculated with inoculum of 10^6 spores/ml concentration (52.00) and 10^4 spores/ml concentration (43.75). Plants inoculated with 10^2 spores/ml concentration (29.50) showed less per cent disease index.

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INTRODUCTION

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 tones. In Andhra Pradesh, it is grown over an area of about 0.022 million hectares with an annual production of 197 million tonnes (Anonymous, 2005-2006). 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 caused by *Alternaria porri* 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. Therefore, the present investigation was carried out in order to assess the effect of host-age and

inoculum concentration on purple blotch severity.

MATERIALS AND METHODS

Onion plants were raised by staggered planting in earthen pots containing potting media at 15 days interval. The plants at 15, 30, 45, 60 and 75 days were inoculated by spraying them with conidial suspension (2.8×10^2 spores/ml) of *Alternaria porri*. Each age was replicated four times and each replication consisted of three plants. The inoculated plants were kept in the glass house for symptoms expression. The observations on appearance and severity of the disease on the plants were recorded and per cent disease index (PDI) was calculated by

Scale	Disease intensity (Per cent)
0	Nil
1	1-15
2	16-25
3	26-50
4	51-75
5	Above 76