

Research Paper :

Basic studies on *Xanthomonas campestris*.pv. *viticola* causing bacterial leaf spot of grape and evaluated *in-vitro* efficacy of different chemicals and bioagents against its growth



SHIVANANDA JAMBENAL, M.R. RAVIKUMAR AND NEELAKANTH HIREMANI

International Journal of Plant Protection, Vol. 4 No. 2 (October, 2011) : 397-401

See end of the article for authors' affiliations

Correspondence to :

SHIVANANDA

JAMBENAL

Department of Plant Pathology, College of Agriculture, University of Agricultural Sciences, DHARWAD (KARNATAKA) INDIA

SUMMARY

The bacterium isolated from infected leaves showing typical symptoms of bacterial spot, yielded, yellow mucoid, shiny, slimy, convex odorless round colonies on nutrient agar medium. Based on physiological, biochemical and morphological characteristics, the bacterium was identified as *Xanthomonas campestris* pv. *viticola*, Among the different chemicals and bio-agents were tested under *in vitro*, the streptocycline 500 ppm plus copper oxychloride 2000 ppm produced maximum inhibition zone (24.97 mm) followed by streptocycline 500 ppm (22.40 mm). Among the bioagents tested, the *Bacillus subtilis* 500 ppm recorded highest inhibition of radial growth (8.15 mm) than *pseudomonas fluorescens* 5000 ppm.(7.05 mm)

Jambenal, Shivananda, Ravikumar, M.R. and Hiremani, Neelakanth (2011). Basic studies on *Xanthomonas campestris*.pv. *viticola* causing bacterial leaf spot of grape and evaluated *in-vitro* efficacy of different chemicals and bioagents against its growth. *Internat. J. Plant Protec.*, 4(2): 397-401.

Key words :

Xanthomonas campestris pv. *viticola*, *Bacillus subtilis*, Chemicals, *In vitro*

Grape (*Vitis vinifera* L.) is an important temperate fruit of the world, native of Europe and cultivating in both tropical and subtropical regions of the world. It is one of the important horticultural crop grown in India. Its contain vitamin 'A' and good source of biflorohoids known to be usefully in condition as pulpusa, capillary edema, radiation damage etc.

Maharashtra has the largest area of 41,400 ha. followed by Kanrataka. 9721 ha, total production 1, 67,044 tones with a productivity of 17.20 tones per ha (Vasantha Kumar, 2007). In Karnataka grapevine cultivation it spread across the Bijapur, Bagalkot, Raichuru, Koppala, Belgaum, Kolar, Bangalore districts (Anonymous, 2006).

Presently, the bacterial leaf spot of grapevine has became a regular problem in the major grape growing area of Northern Karnataka, especially in September pruned vineyards. This diseases was noticed for the first time at Tirupati (Andhra Pradesh) on *Vitis vinifera* cv. ANCB-E-SHCHI, during 1960

(Nyudu,1972) during 1984 this disease was appeared in epiphytotic form in the areas of Sangali and Solapur districts of Maharashtra, on cv. Thompson seedless (Patil, 1988). Yield loss was estimated approximately 60 to 70 per cent (Chand and Kishun,1900). The present study was under taken to know the isolated organism is *Xanthomonas campestris* pv. *viticola* or not with the help of morphological, physiological and biochemical tests, and also evaluated the efficacy of different chemicals and bio-agents against growth of *Xanthomonas campestris* pv. *viticola* under *in vitro* condition.

MATERIALS AND METHODS

Basic studies includes, isolation and identification of the pathogen, with the help morphological, and bio-chemical tests. The infected grape leaves showing typical symptoms of bacterial spots as minute water-soaked lesions on leaves especially on veins and veinlets, irregular to angular and cankerous were collected from major grape growing areas

Received :

July, 2011

Revised :

August, 2011

Accepted :

September, 2011