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INTERNATIONAL JOURNAL OF PLANT PROTECTION / VOLUME 6 | ISSUE 1 | APRIL, 2013 | 219-220

RESEARCH NOTE

Study on etiology of bacterial blight of pomegranate

■ R.B. GAMANGATTI* AND M.B. PATIL

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

ARITCLE INFO

Received : 14.12.2012
Accepted : 15.04.2013

*Corresponding author:
rajaniagri@gmail.com

Key Words :

Bacterial blight, Etiology, Pomegranate, *Xanthomonas axonopodis* pv. *punicae*

How to view point the article : Gamangatti, R.B. and Patil, M.B. (2013). Study on etiology of bacterial blight of pomegranate . *Internat. J. Plant Protec*., **6**(1) : 219-220.

Pomegranate (*Punica granatum* L.) is a favourite table fruit in tropical and sub tropical regions of the world which belongs to family Punicaceae. In India, pomegranate is commercially cultivated in Maharastra and small scale plantations are seen in Gujarat, Rajasthan, Karnataka, Tamil Nadu, Andhra Pradesh, Uttar Pradesh, Punjab and Haryana (Chadha, 2001). Pomegranate is grown all over India covering 1.25 lakh hectares. However, maximum area (87,552 ha) under pomegranate is in Maharashtra followed by Karnataka (11,200 ha), Andhra Pradesh (6,000 ha) and Gujarat (3,700 ha). In Maharashtra, Solapur is having maximum area (30,000 ha) followed by Nasik (25,000 ha), Sangli (9,000 ha), Ahmednagar (6,118 ha) and rest of the districts have less than 5,000 ha. In Karnataka it is mainly grown in Bijapur district and in AP in Anantpur. India accounts for 10 per cent of the total world production of fruits and stands second next to China. India is the second largest producer of pomegranate with a production of 7.92 lakh tons (Anonymous, 2007). A plant with wider adaptability and benefits may also fall sick, which may be due to a pest or pathogen attack. Such sick plants grow and produce poorly. Pomegranate as such is affected by many fungal diseases like Colletotrichum rot, Aspergillus rot, Coniella rot, Pestalotiopsis rot, Pseudocercospora leaf spot etc (Snowden, 1998). However, bacterial blight which is assuming serious proportion in view of the fact that the pathogen is present in a plant and translocates easily wherein the wilting of branches are seen one after another, ultimately the whole plant dries and dies. The disease causes spots on leaves leading to defoliation and fruit spots, and cankerous lesions on stem and in severe cases leading to death of plants.

Different parts of plant affected by the disease *viz.,* infected leaves, twigs and fruits were collected from the farmer's field from Koppal, Raichur and Bellary districts which are the predominant pomegranate growing areas of the state. The affected plant parts were surface sterilized in 0.1 per cent mercuric chloride solution followed by three changes in sterile water.The surface sterilized pieces were transferred into two ml of sterilized water in screw cap tubes. After the water became slightly turbid due to oozing of bacterial cells, the suspension was poured on cooled nutrient agar contained in sterilized Petri plates. The bacterial suspension was dispersed with sterilized surface spreader so as to distribute the bacterial cells uniformly on the surface of the nutrient agar medium. The inoculated plates were incubated at the 28^{0}C for 3 days. Observations were made for development of bacterial colonies on the plates.

The suspected bacterial colonies were picked up with the help of sterilized inoculation loop and streaked on to the surface of yeast extract dextrose calcium carbonate agar (YDCA, Schaad, 1992) contained in sterilized Petriplates. The plates were incubated at 28^{0}C for 48-72 hours and the observations were made for the development of well separated typical light yellow coloured bacterial colonies. Such pure colonies were further streaked onto the agar slants containing the nutrient agar medium and incubated at 30^{0}C for 72 hours, then cultures were stored in the refrigerator at 5^{0} C, which served as a stock culture for further studies. The culture was equally maintained by sub-culturing it at 15-20 days interval.