



Fig. Bacterial blight disease symptoms on pomegranate fruits along with healthy red colour fruit on left. Photo credits G.K. Kumar, ref. #2).

Disease: Bacterial blight

Causal Agent: *Xanthomonas axonopodis* pv. *punicae*

Classification: D: Bacteria, C: Gammaproteobacteria, O: Xanthomonadales, F: Xanthomonadaceae

X. axonopodis pv. *punicae* is a bacterial pathogen that causes serious blight disease of pomegranate. The disease was first reported in India where it is a major threat to pomegranate cultivation due to lack of effective control measures. The blight can cause 50 to 100% production loss depending on disease severity. In Australia, pomegranate is one of the emerging industries that has high potential to expand in coming years. The causal agent of this deadly pomegranate disease is not yet reported in Australia. But it has the potential to enter, establish and trigger significant damage to the newly growing industry.

Distribution and Host Range

Till now *X. axonopodis* pv. *punicae* is reported in a few states of India only and pomegranate (*Punica granatum*) is being claimed as the only host. However, the other strain of the bacteria (*X. axonopodis* pv. *citri*) causes citrus canker and is a serious economic threat to the citrus industries. It is found in a number of countries, but has been eradicated from Australia (Qld) following a recent incursion.

Symptoms and Biology

The pathogen attacks all the above ground plant parts including fruit splitting that results in huge yield and market losses. The initial symptoms appear as water-soaked translucent irregular to circular minute black spots on leaves. Gradually the centre of the spots become necrotic and turn dark brown. In severe cases, spots coalesce and produce a large patch that may result in shedding of infected leaves. Dark spot symptoms develop on stem nodes, start off cracking and easily break off the branches. Bacterial ooze is used for chemical diagnoses of the disease.

The disease initiates through wounds and its spread is influenced by increased day temperature, low humidity and rain. The bacteria overwinters in infected plant leaves, stems and fruits. Rain splash, insects and contaminated pruning tools help in spreading the disease locally. International trade and tourism are responsible for long distance spread via infected plants, twigs, and fruits.

Potential Impact in Australia

The disease management demands regular phytosanitary measures that are labour extensive and costly. With high labour costs in Australia, the newly growing pomegranate industry will face tremendous challenges if the causal agent of this disease enters and establishes in the country.

Management and Control

No effective chemical control is available for this disease. Use of disease free plant material, removal and burning of infected plant parts, phytosanitary cultivation techniques, and bacteriocidal sprays containing antibiotics or copper help to some extent.

Further Reading

1. Suriachandra *et al.* (1993) *South Indian Horticulture* 41, 228-229.
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3. <http://www.hindu.com/2009/02/02/stories/2009020259890600.htm>
4. Kumar *et al.* (2009). Proc. 1st on Pomegranate Ed. A. I. Ozyuven, *Acta Hort.* 818, ISHS

Key Contacts

Abu-Baker M. Siddique - DAFWA, Australia
E-mail: asiddique@agric.wa.gov.au
 Telephone: 61 8 9368 3261.

David C. Cook - CSIRO, Entomology, Canberra
E-mail: david.c.cook@csiro.au
 Telephone: 61 2 6246 4093.

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