

Aonla (Indian Gooseberry) Blue Mould: An Important Post Harvest Threat

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Aonla (*Emblica officinalis* Gaertn) is an important fruit crop in arid and semi-arid growing regions, which is known for its high ascorbic acid content and for its higher medicinal and nutritive value. The fruit of aonla is a rich source of vitamin C. The fruit is having more medicinal value. It has acrid, cooling, diuretic and laxative properties. Dried fruits and its powder are helpful to manage haemorrhages, diarrhea, dysentery, anaemia, jaundice, dyspepsia and cough. Aonla is used in the various indigenous medicines (in Aurveda) like trifla and chavanprash. Fruits are commonly used for preserve (murabbas), pickles, candy, jelly and jam. Besides fruits, leaves, bark and even seeds are being used for various purposes.

Several fungal pathogens causes post-harvest diseases of aonla fruits and cause heavy loss, if harvesting/ handling is not properly done (Omprakash, 2003, Arya and Arya, 2004). Blue mould rot (*Penicillium citrinum*) are predominant postharvest diseases in aonla growing area of Rajasthan. In addition to causing food spoilage, some strains of the fungus produce the mycotoxin, patulin. Keeping in view the post-harvest decay of aonla fruits this article focused on symptoms of blue mould disease, cause and on effective management strategies.

Symptoms

- ♣ In postharvest, pathogen causes pale yellow and brown patches and water-soaked areas on the fruit surface.
- ♣ With the disease progresses, three different types of colours develop in succession, i.e., first bright yellow sporulation (Fig. 1), then purple-brown and finally bluish green (Fig. 2).
- ♣ There is exudation of drops of yellowish liquid on the fruit surface.
- ♣ The fruits emit a bad odour. The whole fruit finally gives a bluish-green postulated or ornate appearance (Fig .3).

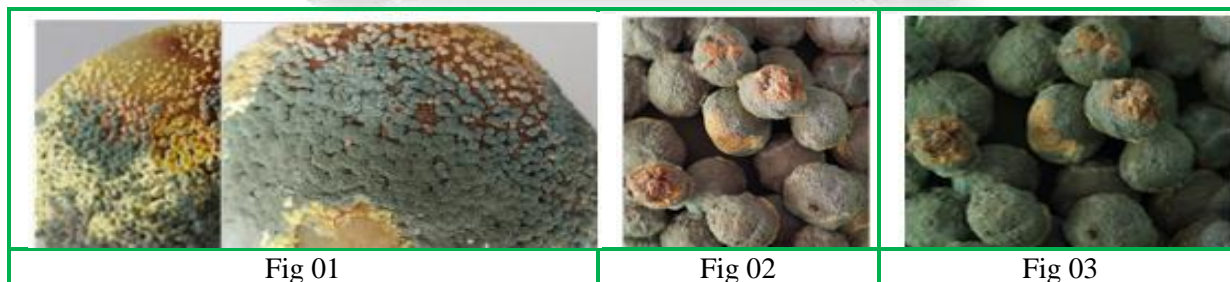


Fig 01

Fig 02

Fig 03

Pathogen nature, behaviour and factors favour to disease development:

- The fungi *Penicillium citrinum* is a genus of saprophytic (feeding on dead and decaying materials) fungi. They are commonly known as blue or green mould. This fungi can be

found at various places such as soil, air, on decaying food, etc. The vegetative structure of *Penicillium* is a multicellular mycelium

- The mycelium is made up of highly branched, multinucleated and septate long thread-like filamentous structure known as hyphae.
- Conidia are produced from the specialised cells called phialide, present in the group and give a brush-like appearance to the fungus (Fig. 4).
- Most *Penicillium* species grow over lower temperature below 5°C, and some at 0°C (J.I. Pitt 1999).

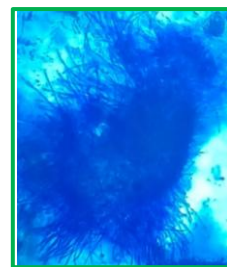


Fig 04

Management

- ♣ Careful handling of fruits during culmination. Any injury on the fruit surface during harvesting and storage make the aonla fruits prone to blue mould.
- ♣ Avoid bruising or injury to fruits while harvesting.
- ♣ Sanitary conditions in storage should be maintained.
- ♣ Treatment of fruits with borax or sodium chloride (1%) checks the blue mould infection. Treatment with carbendazim or thiophanate methyl 0.1% after harvest. Fruits smeared with mentha oil, checks the rot.

Conclusion

There is a demanding need to introduce effective strategies to control post-harvest diseases which will pose minimum risk to human health and the environment as a whole. Biological control of disease is being introduced lately in agricultural practices in place of fungicides, because they are economically viable and environment friendly. Reports regarding the biological control of pathogen involving a microbial antagonist in Indian gooseberry are rather limited. Therefore, in the future, there is scope for research in this sector of biological control practices as well as for other novel strategies that might come up to combat post-harvest diseases (Sengupta et. al.2019).

References

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