

**A NEW PRE-HARVEST FRUIT ROT OF AONLA (*EMBLICA OFFICINALIS*) CAUSED BY *PESTALOTIOPSIS VERSICOLOR* FROM CENTRAL INDIA**

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### ABSTRACT

*Pestalotiopsis versicolor* was isolated from pre-harvest fruit rot of *Emblica officinalis* from Jabalpur, Madhya Pradesh, India. The fungus develops small, circular, black, slightly sunken spots on fruits initially. Later on the spots enlarge rapidly, became sunken, and resulted in a soft decay of the fruit flesh. The fungus is for the first time reported causing soft rot of aonla.

**KEYWORD:** Fungal pathogen, medicinal plant, new disease,

### INTRODUCTION

Aonla (*Emblica officinalis* Gaertn. Syn. *Phyllanthus emblica* L.) also known as Indian goose berry is an important fruit use as many ayurvedic medicines and food (Soni and Verma, 2010). The susceptibility of aonla to various fungi has been well documented in pre harvested and post harvested fruits. A pre-harvest fruit rot was observed frequently during the colder months of January. The rot appeared as small, lemon coloured lesions, which enlarged and got covered with funicles of conidiophores bearing spore. The disease usually resulted in pre-mature fruit drop, which later mummified on the ground. However, some fruits were even observed to mummify on the tree itself. The present article reports a new record of fruit rot disease of *Emblica officinalis* caused by *Pestalotiopsis versicolor* in central India.

### MATERIAL AND METHOD

Diseased aonla fruits were collected in pre-sterilized polythene bags from Jabalpur and brought to the laboratory for isolation of the pathogen (Fig. 1a). For microscopic study, slides

were prepared in lactophenol and cotton blue staining reagent and studied under different magnification using advance research microscope [Leica (Germany) model DMRB 1994] and photographs were taken.

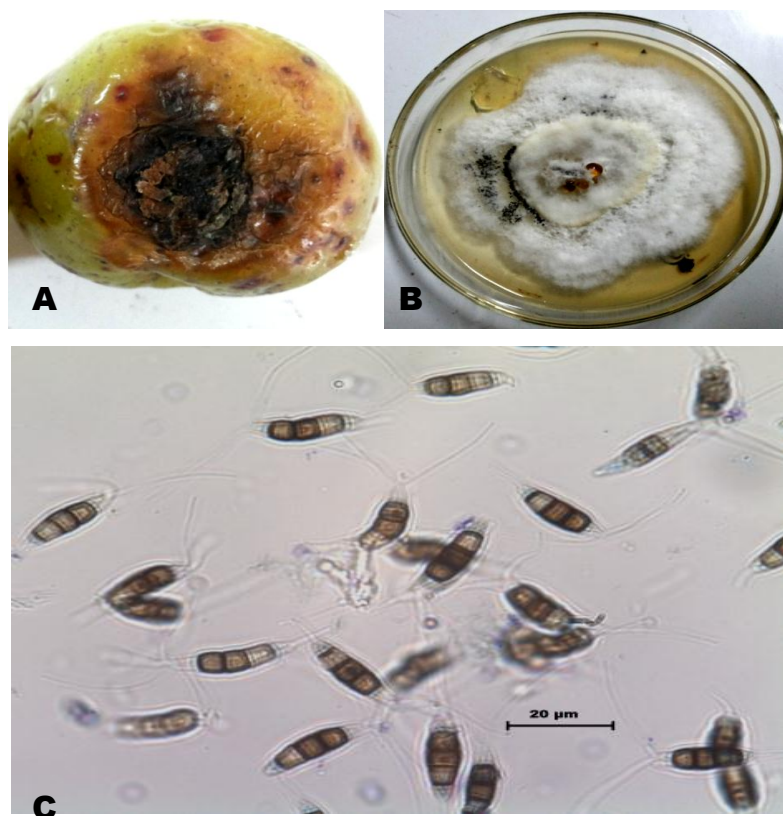
Diagnosis and identification of causal organism were done in laboratory. The pathogen was cultured in Perti dish using sterilized potato dextrose agar (PDA) medium inoculated with surface sterilized diseased bits of infected fruits. After 5 days of incubation at  $28\pm 2^{\circ}\text{C}$ , white growth of fungal colony appeared in Petri dish (Fig 1b). The pathogen is deposited in the mycology herbarium under Accession No. 3844 and culture is deposit in TFRI, Jabalpur under Accession No. TFC90. The pathogen was identified after cultural and microscopic study and by consulting literature (Burnett, 1976; Verma *et al.*, 2008; Deng *et al.*, 2013; Sajeewa *et al.*, 2013) (Fig 1c).

## RESULTS AND DISCUSSION

*Pestalotiopsis versicolor* (Speg.) Steyaert (Fungi, Ascomycota, Sordariomycetes, Xylariomycetidae, Xylariales, Amphisphaeriaceae) Spots dark black with black margin. Colonies punctiform. Acervuli scattered, globose to lenticular, raised. 3 median cells pigmented end cells hyaline, lacking cytoplasm, 2 or more apical, cellular simple or branched appendage, Conidia thicker above, tapering below, straight to slightly curved, middle cells coloured with two upper cells darker than the lowest one, cells hyaline, basal cells broad conic, apical cells with 3 setulae,  $21.8\text{-}26.2 \times 6.5\text{-}8.7 \mu\text{m}$ .

*Pestalotiopsis* spp. are important plant-pathogenic species known mostly from the tropics, where they cause leaf blights (Guba, 1961) in many plant species (Hyde & Frohlich, 1995; Xu *et al.*, 1999; Das *et al.*, 2010; Maharachchikumbura *et al.*, 2011). Species may also cause rots of fruit and post-harvest diseases of other plants (Korsten *et al.*, 1995). Species may also cause rots of fruit and post-harvest diseases of other plants (Korsten *et al.*, 1995). *Pestalotiopsis cruenta* (Syd.) Steyaert had been reported causing fruit rot of aonla from Allahabad, Uttar Pradesh (Srivastava *et al.*, 1964). Several fruit post-harvest diseases are caused by species of *Pestalotiopsis* for example, post-harvest decay of mangos (*Mangifera indica* L.) by *P. glandicola* (Castagne) Steyaert (Ullasa & Rawal, 1989), fruit rot of grapevine (*Vitis rotundifolia* Michx.) by *P. menezesiana* (Bres. & Torrend) Bissett as well as *P. uvicola* (Speg.) Bissett (Xu *et al.*, 1999) fruit rot of rambutan (*Nephelium lappaceum* L.) by *Pestalotiopsis* sp. (Sangchote *et al.*, 1998) and *Psidium guajava* Linn. from Australia (Jeewon *et al.*, 2004) and from Hawaii (Keith *et al.*, 2006). From South Africa, avocado

(*Persea americana* Mill.) post-harvest (anthracnose, stem end rot) (Deng et al., 2013; Korsten, 1994; García, 2009) were reported. In India *P. psidii* (Pat.) was isolated from fruits of scabby fruit canker of guava (Kaushik et al., 1972); A *Pestalotiopsis* rot of *Achras zapota* Linn., was reported from Jaipur, Rajasthan (Gupta and Sehgal, 1974); of orange (*Citrus sinensis* (L.) Osbeck), from Jabalpur, MP (Agarwal and Hasija, 1974); of karonda (*Carissa carandus* L.), from Allahabad, Uttar Pradesh (Kumar and Tondon, 1968); of *Phaius tankervilleae* (L'Her.) Blume from Assam (Utikar et al., 1980); of sapodila (*Manilkara zapota* (L.) P. Royen) Dhingra et al., (1980); of *Punica granatum* L. from Ahmadnagar, MS and soft fruit rot in apricot in market of Manipur (Jamaluddin et al., 2004).



**Fig1: *Pestalotiopsis versicolor*: (A) symptom on aonla fruit, (B) pure culture and (C) conidia with appendages**

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