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Post-harvest diseases associated with *Luffa cylindrica* in the fields of Kota district of Rajasthan

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Abstract
Smooth gourd is multipurpose vine crop extensively grown in Rajasthan and having paramount importance and widely accepted for nutrients. It suffers from a number of diseases. Fruit losses are greater during wet weather especially flowering stage relatively dry weather conditions. Anthracnose, Belly rot, Phytophthora Fruit Rot, Choanephora Fruit Rot and Cottony Leak disease found most severe post-harvest diseases in smooth gourd fruits samples of Kota district of Rajasthan and cause heavy losses to the nutrients of the fruits. Infection spreads in internal tissues of fruits, while cottony fungal growth completely covers the luffa fruits.

Keywords: *Luffa cylindrica*, fruits, weather, fungi, infection

1. Introduction
Sponge gourd or loofah refers to any of several tropical annual climbers cultivated for its edible young fruits. Smooth gourd (*Luffa cylindrica*) is important vine crop extensively grown in Rajasthan. It is multipurpose crop having paramount importance and is widely accepted for their nutrients. It suffers from a number of disease, but in present study heavy losses in fruits were recorded by the infection of Anthracnose (*Colletotrichum orbiculare*), Belly rot (*Rhizoctonia solani*), Phytophthora fruit rot (*Phytophthora capsici*), *Choanephora* fruit rot (*Choanephora cucurbitarum*) and cottony leak (*Phthium sps*). Fruit losses are greater during wet weather especially flowering stage relatively dry weather conditions.

2. Materials and methods
Fruits of *Luffa* were collected from fields and vegetable market of different localities from seven areas namely Bargoan, Dadhevi, Kalataloa, Mandana, Nanta, Ranpur, Ratkankara of Kota district of Rajasthan. Fruits were sterilized with 1% hypochloride solution and then incubated on blotter papers under aseptic Conditions of alternating cycle of light and dark on 8th day of inoculation.

3. Results
Fruits were collected from field and vegetable market of different localities from 7 areas of Kota district. Important fungi and the post-harvest diseases caused by them were as follows.

Anthracnose (*Colletotrichum orbiculare*)
Leaf lesions first appear near veins, are roughly circular (often restricted by veins) and range from light brown to reddish. These lesions increase in size as the disease progresses. The leaves become distorted, and the lesion‘s center may crack or drop out, creating a shot hole appearance. Fruit lesions are circular, sunken, water-soaked areas, which first develop as the fruit approaches maturity. In moist conditions, the lesions turn black and are covered with pink spore masses. Early fruit infections may result in abortion or malformation of the affected fruit (Fig - 1A).

Belly rot (*Rhizoctonia solani*)
This rot develops where the fruits come into contact with the soil. Young infected fruit have a yellowish brown, superficial discoloration which later develops into sunken irregular spots on the underside or belly (Fig. 1B). Large water-soaked decayed areas may develop on mature fruit.

Phytophthora Fruit Rot (*Phytophthora capsici*)
Fruit rot of processing gourd caused by *P. capsici*. Initially, lesions appear on fruit surface. Fruit rot developed on the side contacting the soil as a result of falling of an infected leaf on fruit. Severely infected fruits are collapsed (Fig. 1C).

Choanephora Fruit Rot (*Choanephora cucurbitarum*)
The pathogen causes *Chaenpohora* flower and fruit rot of cucurbits. Symptoms begin as a soft, wet rot of flowers and the blossom end of fruit. Infected fruits decay rapidly, becoming soft and watery. A profuse, fuzzy fungal growth with large masses of black spores forms on infected tissues (Fig. 1D). The pathogen‘s distinctive appearance (like numerous small black headed pins sticking out of a pincushion) is diagnostic for this disease.

Cottony Leak (*Pythium sps.*)
Cottony leak, also referred to as Pythium fruit rot, affects most cucurbits. This disease generally appears first on portions of fruit in contact with soil. Small, water-soaked spots expand rapidly until large portions of the fruit are necrotic and soft. Profuse, white fungal growth resembling tufts of cotton (Fig. 1E, F) can be found on organism, have been implicated in this disease.

Fig 1 (A-F): Post harvest diseases of sponge gourd

A. *C. orbiculare* infected fruit
B. Fruit suffering from Belly rot
C. *Phytophthora* infected sponge gourd fruit
D. *Choanephor*a flower rot
E-F. Cottony leak of sponge gourd

4. Discussion

Fruit rot developed on the side contacting the soil. Fruit rot as a result of falling of infected leaf of fruits, severely infected fruits are collapsed. Similar results was observed by Naureen, *et al*. (2009) [4] in bitter gourd, egg plant, sponge gourd and tomato. Seebold (2010) [5] observed Pythium-sps can cause serious lasses of cucumber.

Fruit losses are greater during wet weather especially in dry weather where as in luffa infection spreads in internal tissues of fruits, while cottony fungal growth completely covers the fruit. Davis *et al*. (2010) [1] studied belly rot in vine crops. In this crop fruits are very small and show yellowish brown discolorations. Shakir *et al*. (1992) observed water soaked areas on fruits of vine crops where as TNA (2010) [7] studied the post harvest disease of cucurbits in Tamil Nadu. Henz *et al.* (2007) [2] observed similar symptoms on okra pods caused by *Rhizoctonia solani* in Brazil. Hilal *et al*. (2003) [3] described the control of flower and fruit rot of loofa.

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6. References

1. Davis JM, De Courley CD. *Luffa* sponge gourds. A potential crop for small farms: Int J of New Crops. 2010, 560-561.
2. Henz GP, Lopes CA. Reis A novel post harvest rot in okra pods caused by *Rhizoctonia solani* in Brazil. *Fitopatol bras.* 2007; 32(3):180-185.
3. Hilal AA, Abo-El Ela AM, El-marry SA, Nada MGA. Prevalence and control of flower and fruit rot of loofa (luffa aegytica L.) in Egypt. Egypt J Phytopathol. 2003; 31(1-2):167-182.
4. Naureen, Humaira, Vigar, Jehonn, Syed. Prevalence of Post harvest rot of vegetables and fruits in Karachi, Pakistan Pak J Bot. 2009; 41(6):3185-3190.
5. Seebold K. Fruit rots of cucurbits plant Pathologh- co-operation extension service. University of kentuky, 2010.
6. A.S, J.H Mirza. Seed- Borne fungi of Bottle gourd from Faisalabad and their contral. Pak J Phytopathol. 1992; 4:54-57.
7. T.N A.V. Post harvest diseases of cucurbits. TNAV agritech portal Tamil Nadu Agricultural University. Coimbatore, 2010.