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Fusarium Oxysproum on Shorea Robusta in Forests of Nepal and India

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ABSTRACT
FUSARIUM WILT is a common disease exploded in the Eastern region, central region and western region of forests of Nepal as well as in the Himalayan and Sub Himalayan region of India and other Asian countries. 6-8% loss is estimated in the previously reported, Mishra (2016) especially eastern zone of Nepal and adjoining area of Bihar, while Pavitra et al (2018) reported molecular investigation of genes expression analysis in to contrasting genotypes of banana during FUSARIUM WILT (Foc1) infection.

Introduction

FUSARIUM is a obligate parasite, having micro conidia and mega conidia with conidiophore having different orientation of conidia. the micro conidia is unicellur and rounded to oval in shape, while mega conidia sickle shaped with septation two to five and more depending upon different hosts. *Shorea robusta* is a source of wood and frequently used by timber - industries and other allied purposes and nothing whatever debaries left in the forest or where located it meet to burn to prepare either meal or a source of heat generation by local people.

Review of Literature

Regarding the host and pathogen relationship different mycologists have their opinion. Some of them, Jordine & Losile[1](1992) have described ***Fusarium moniliformae*** attack on sorghum-grains during the storage condition, while KHOKHAR et.al[2](2014) studied effect of plant age and water stress on the incidence of post flowering stalk rot of maize caused by F. *verticilliodes*.Kochher[3](1998) mentioned in his book about the importance of host plants. Prof Husai et.al[4](1983) edited the relationship of more than one host in the book Recent advances in plant pathology and Lal & Dwivedi[4](1982) mentioned *Cephalosporium and Fusarium* stalk rot of maize in the book Recent Advances in plant pathology. Mishra[5](2004) submitted Ph.D. Thesis describing Apiaceous members as hosts & allied pathogens. Mishra[6](2012) studied & presented paper on *Fusarium oxysporum* on *Mimosa pudica* at Banglore and again there his another paper wilting in ***Mangifera indica*** having ***Fusarium oxysporum*** in eastern zone of Nepal at Biratnagar, published[7] Mishra[8] (2016) mentioned 6-8% loss in productivity, due to fusaria in Eastern Zone of Nepal & Adoining area of Bihar, while Pavitra et.al[9] (2018) reported molecular investigations of genes expression analysis in the contrasting genotypes of banana during Fusarium wilt (Foc1) infection. Rathore et.al[10] (2005) studied *Fusarium* rot of maize in Rojsthan and Thorii[11] (2011) mentioned F. *moniliformae* at Udaipur. Trivedi, [12] Jain & Kothari (2002) studied the control measures of F. *Pallidoroseum* through the use of fungicides.

FIELD VISIT - PLACE, M.M.A.M.CAMPUS, BIRATNAGAR, T.U. NEPAL.DATE - 09-01-2019 TIME: 2.35 P.M.

I) A little material for observation taken.
II) Side diameter of the whole 43.4cm.
III) One sub-whole -16.5 cm. diameter.
IV) Length of the cut piece - 108 cm.
V) Another side of the whole - 61cm.
VI) Diameter of the whole -234cm.
VII) Irregular growth of tissue - (+)
VIII) Even a little - collected for future investigation . The piece of the tree lying in the field was measured after cutting in several parts smaller and larger one but easy to carry from the field to the industry related wood.
IX) Due to more logging of water during the rainy season.
X) A larger ditch like a larger pond, surrounding the several trees out of them some are sal, *shorea robusta Roxb gaertn.f.* and other hard timber and even soft timber bearing plants were planted in the name of controller of global warming neutralizes the pollutants surrounding the field society of human beings as well as the plants other animals related one another in a specific manner maintaining the balance of environment or biodiversity .
XI) Each part 'A' and 'B' denoted sides of the wood producing piece.
XII)'A' and 'B' taken with date to observe under micro scopic vision - 40x, 100x, 400x.
XIII) Morphological view shows side 'A' - white mass of mycelia, black, brown or rotten easily breakble with an ant moving on a quadrate like small piece.
XIV)Side 'B' shows all the colour mentioned of 'A' except an ant, but it is larger and elongated than 'A'.

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XV)The variation of shape and size is due to sec. growth of tissues i.e. xylem and phloem.

XVI) Breakage in the channels making the path full of water and pathogens or debaries, which resulted finally some branches loss and weakended but finally the death of plants due to loss of anchorage portion, bending the trees or coming above the root system from the soil, as soon as water was evaporated and moist mud around the trees way be dangerous in future.

XVII) Therefore, in time trees were cut into different pieces.

Microscopic Observation

I) Saprophytic growth of mycelia, being white colour --(+)

II) Obligate parasite *F. oxysporum* --(+)

III)Mycelia - septate and branched ----(+)

IV) Micro - conidia unicelluler small, rounded --(+)

V) Mega- conidia, septate 2 or even more, curved and sickle septate --(+)

VI) Conidiophores- short, phialides --(+)

VII) Mega conidia destroy the vessel, while micro conidia in different tissues like parenchymatous to anywhere it may pass and damage causing wilting disease.

VIII) Several other pathogens especially, saprophytic-- *Aspergillus, Rhizopus* and other(+)

In the timber yielding trees.

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