ABSTRACT

Fusarium thapsinum infection (characterized by macro- and microconidia morphology along with growth characteristics on PDA) transmitted by Asiatic fungal weevil (Eurymycter napinatus) is first reported for the species Uraria picta (Jacq.) DC. (Family: Leguminosae, Papilionoidae; an important herb in Ayurvedic medicine) from control, M1 and M2 populations (grown as a rainfed kharif crop — May to November) in random plants. Symptoms noted were drying up of apical buds, downward spiral curling and stem rot in the near vicinity at the onset of flowering. Microscopic examination showed degeneration of parenchymatous pith and anthers, browning of vascular bundles and pollen grain degeneration, agglutination and sterility with progressive infection. The infection did not impair the productivity of the affected plants as frequent lateral buds were produced (uncharacteristic to the species morphology) on the side of the infected buds.

Keywords: U. picta, weevil, F. thapsinum

Abbreviations: dES, diethyl sulphate; EMS, ethyl methan sulphonate; HA, hydroxyl amine; M1, first mutant generation; M2, second mutant generation; PDA, potato dextrose agar

Fusarium species are reported to possess a broad host range causing crown and root rots, stalk rots, head and grain blights and vascular wilt diseases (Nelson et al. 1981, Summerell et al. 2001) primarily and to lesser extent diseases such as malformation in mango (Ploetz 2001), bakene disease in rice (Summerell et al. 2003) amongst others. Fusarium infection was identified microscopically from diseased parts (apical bud, adjoining leaflets and stem) of Uraria picta (Jacq.) DC. (Family: Leguminosae, Papilionoidae; an important herb in Ayurvedic medicine) from control as well as mutagenized population (treatments: ethyl methane sulphate, EMS, 0.02M phosphate buffer at pH 6.8 used for dilutions), diethyl sulphate (dES, aqueous) and hydroxyl amine (HA, aqueous). 2.5%, 5.0% and 1.00% for 3 and 6 h; seeds were treated and sown in experimental garden along with control representing M1 population, seeds collected from selfed inflorescences of individual plants and sown in plant to rows formed the M2 generation) grown in an experimental field (as rainfed kharif crop: May to November) of University of Kalyani (Latitude: 22° 11' 6'' to 23° 5' 2'' N, longitude: 88° 2' 7'' to 89° 5' 39'' E) during the onset of flowering. Microscopic examination showed degeneration of parenchymatous pith and anthers, browning of vascular bundles and pollen grain degeneration, agglutination and sterility with progressive infection. The infection did not impair the productivity of the affected plants as frequent lateral buds were produced (uncharacteristic to the species morphology) on the side of the infected buds.

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characteristics on PDA it seems that the infecting organism is \textit{F. thapsinum} (white mycelium and yellowish pigmentation in PDA is species specific) which corroborates taxonomic evidence (Klittich et al. 1997) and the species epithet (Leslie and Summerell 2006). Earlier Summerell et al. (2003) reported stem rot of Sorghum by \textit{F. thapsinum}.

Being the very first report of any disease in \textit{U. picta}, the \textit{F. thapsinum} infection did not seem to impair the productivity of the plants as frequent lateral buds were produced (not a characteristic morphological feature of the species) by the side of the infected buds. Further, this report confirms the possible transmission of \textit{F. thapsinum} by Asiatic fungal weevil (\textit{Fusocarnia napinatum}).

\textbf{REFERENCES}


\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{FigurePlate1.png}
\caption{\textit{Uraria picta}. (1) Uninfected floral bud. (2) Infected (dried) apical bud with lateral bud formation and six spotted ladybug. (3) Symptom showing downward spiral curling of leaflets. (4) Stem rot. (5) Transverse section of stem showing complete disintegration of parenchymatous pith and browning of vascular bundles (scale bar = 5 mm). (6) Asiatic fungal weevil feeding on young uninfected floral bud.}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{FigurePlate2.png}
\caption{\textit{Fusarium thapsinum}. (7) Falcate macroconidia. (8) Napiform microconidia. (9) White mycelial growth on PDA – upper surface. (10) Yellow pigmentation on PDA – lower surface. Scale bar = 100 \mu m.}
\end{figure}