

## Proceedings of the Monthly Research Seminar on “Phytoplasma Diseases in Forestry: Ignorant on vectors and their management” Held at IWST, Bengaluru On 23/09/2019

Dr. V.P.Tewari, Group coordinator (Research) welcomed Director, Senior Scientists and all the participants and explained about the importance of the monthly seminar.



Dr. R. Sundararaj, Scientist-G, Forest Protection Division made a detailed presentation on “Phytoplasma Diseases in Forestry: Ignorant on vectors and their management” and specifically focused on the phytoplasma diseases and its problems. Further, the presenter elaborated upon the nomenclature, definition of phytoplasma and he explained that Phytoplasmas (class Mollicutes, genus ‘*Candidatus Phyto-plasma*’) are intracellular bacterial pathogens of plants and cause devastating yield losses in diverse low-and high-value crops world-wide. He also emphasised that according to ICNB rules (International Code of Nomenclature of Bacteria), Phytoplasma was given “*Candidatus*” status as it was uncultivable.

The presenter explained that phytoplasma is associated with more than 600 plant diseases worldwide with a noticeable impact on agriculture economics and said that in India,

Phytoplasma's have been found associated with 129 plant species including vegetables, legumes, spices, medicinal and ornamental plants, cash and oil crops, palms, trees and weeds.



During the course of presentation, Dr. R. Sundararaj explained about transmittance of the disease, potential group of vectors associated and responsible for transmittance and management of phytoplasma in agriculture sector. A small video clip was also shown by him to explain the vector control in agricultural sector.

The speaker explained about the prevalence of spike disease in sandalwood trees in different parts of Karnataka and Kerala and emphasised the need for its more intense study and research for its eradication. He said that this deadly disease is caused by *Candidatus Phytoplasma asteris*. (Gene sequence deposited for the first time in NCBI) and told that this is the major re-emerging disease in Sandalwood and killing the trees.

During his presentation, he said that in Marayoor Sandal reserve 51 Sandalwood Spike Disease (SSD) was observed first time in 1990. He also informed that now even a single sandalwood tree is not there and drastic reduction in the density of sandalwood tree in Marayoor is observed. He presented a table about status of sandalwood on its density and abundance.

During discussion, issues relevant to the density and abundance were raised by Director, IWST, Group co-ordinator (Research) and other participants. Their apprehensions were duly addressed by the presenter. During this discussion Director asked Dr. R. Sundararaj to write a popular article and publish it immediately.

Director asked the speaker to formulate an interdisciplinary and collaborative concept note on the future roadmap in this direction in the shape of a research project on similar lines and evolve strategies for proper networking of the same.

## **Outcomes of the Seminar**

### **A. Identification of research needs**

1. Assessment of incidence of Sandalwood spike disease, phytoplasma control and management strategies.
2. Taxonomic identification to species level and molecular confirmation of species,
3. Determining the actual vectors of SSD and their transmission potential.
4. Determination of the feeding and breeding hosts of the potential vectors.
5. Developing possible management strategies against the vectors

### **B. Formulation of future strategies / roadmap**

- To formulate future strategic road map for identification of vector responsible for destruction and transmitting the disease and evolve strategies for proper networking of the same.

### **C. Networking research options identified**

Collaboration with National Centre for Cell Science, Dept. Of Bio Technology, Govt. of India, Pune was suggested

### **D. Future research direction**

It was discussed for implementation and exploring opportunities for funding, the presenter asked to formulate an interdisciplinary and inter institute collaborative concept note on the future research needs in phytoplasma and sandalwood spike disease.

