

Date - 10-02-2024

Department of Botany B.Sc - part III Home

online class J.J. College, Ara or Sumit Pandey

Time - 10:00 - 11:00 AM

paper - VI - Group - B, plant pathology

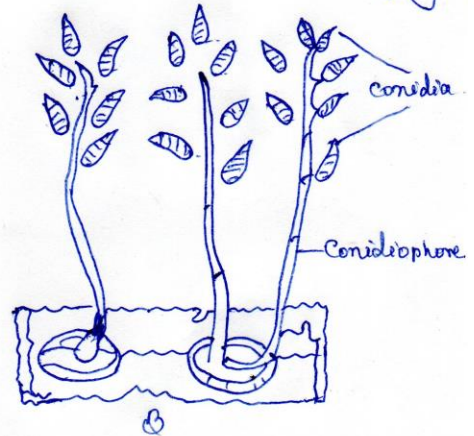
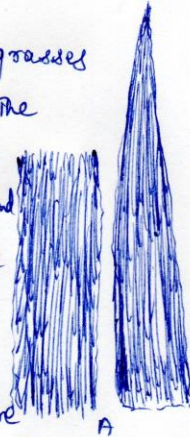
Question → Describe the symptoms, etiology and control of blast disease of Rice (paddy)

Ans → The blast disease of rice is also known as blast of rice. The disease is worldwide in distribution but it is more prominent in the humid areas of the world having high annual rainfall.

Symptoms of disease → The disease appears on leaves, leaf sheaths, rachis and even on glumes. On younger leaves it appears as small bluish patch which enlarge considerably to several centimeters long in the later stage. In a large spot the central part is pale green or dull green and the outer rim is dark brown in colour.

Etiology → The disease is caused by Pyricularia oryzae. The mycelium of the fungus is septate, branched with multinucleate cells. The reproduction takes place through conidia. The conidia are produced apically on conidiophore. The conidiophores are unbranched or rarely branched, septate, slender and grey in colour.

The fungus survives in grasses and early sown paddy crops. The stages, (a) rapid tillering stage (15-30) day after transplantation and (c) ear or neck emergence stage when the ear or neck is attacked and damaged.



Humidity and temperature are the important environmental factors that play key role in the spread of disease. Subramaniam (1967) and Sugganarayana (1967) have investigated that 30°C day temperature and 20°C night temperature and 10 hours of darkness favour the growth of fungus.

Control → The disease is controlled by —

- (i) Field sanitation
- (ii) seed treatment (Agrosan GN, mixture of abtopfungus and Copper sulphate)
- (iii) foliar spray: by variety of chemical like Copperozon, Bliton-150, Cufosavit.
- (iv) Antibiotics like kitazen, mazin, Blastrin and kausumim etc.

Date - 10 - 02 - 2024

Department of Botany - B.Sc - part - II Honors

Time - 9:10 r

online class J.T. College, Ara, Dr. Sunil Pandey

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Question → Describe sulphur cycle?

Ans → This is also a sedimentary cycle. Sulphur is structural component of protein. It links air, water and soil where microbes play an important role. Most of the organisms take sulphur as sulphates dissolved in water. This comes to the surface after death and decay of organism and then it is utilized by the plants. The sulphur cycle involves following steps. —

- (i) The sulphur bacteria like *Thiobacillus* oxidises sulphur found in soil into sulphate. This sulphate is present in the soil in soluble form and is directly taken up by plants.
- (ii) The plants synthesize proteins from sulphate.
- (iii) When plants are eaten by animals, sulphur becomes incorporated in the tissues of animals in the form of proteins.
- (iv) Decomposition of plant and animal bodies by micro-organisms causes release of sulphur in the form of hydrogen sulphide.
- (v) Some amount of hydrogen sulphide is converted back into a reutilizable sulphate by bacteria.

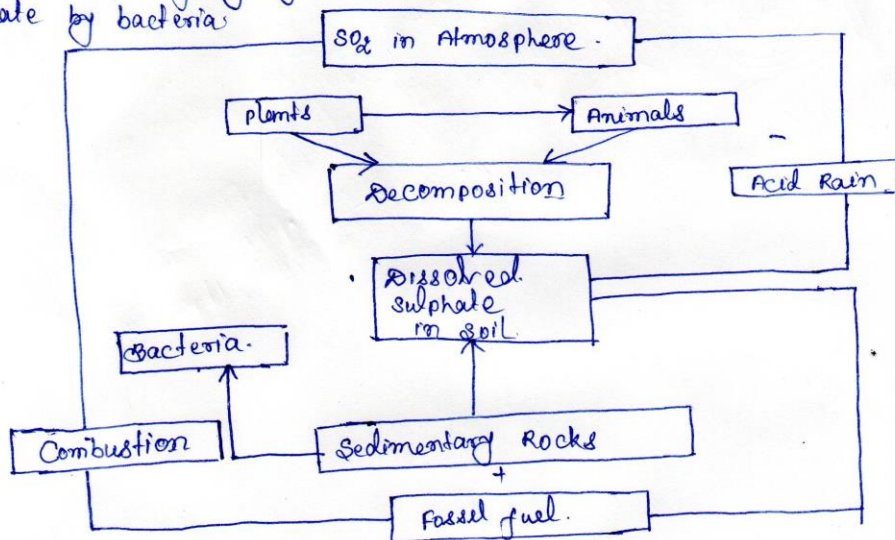


Fig - Sulphur cycle.

- (vi) Some amount of sulphur becomes converted into sulphur dioxide due to burning of fossil fuels which becomes one of the major sources of air pollution.
- (vii) The sedimentation of sulphur is made due to precipitation in presence of iron in aerobic condition which results in the formation of ferrous sulphide. This ferrous sulphide is soluble in neutral and alkaline water.

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