

ELE PATH-243

❖ IMPORTANT POINTS

1. Nitrogen fixation is also called as **Diazotrophy**.
2. **Feed Boldween and MC Coy**: 7 cross inoculation groups of N fixation in Rhizobium.
3. **Leghaemoglobin** pink in color in root nodules of legumes identified by Kubo.
4. **Nif genes** are responsible for Nitrogen fixation in BGA.
5. In Azotobacter, the range of fixation is **2-15 mg N fixed / gram** of carbon source utilized.
6. Azospirillum is gram -ve and contains **poly beta hydroxyl butarate** granules.
7. Preparation of sulphur oxidizing bacteria are called as **Biosuper of sulphobacteria**.
8. Symbiotic association of fungi and root system of higher plants is called as **mycorrhiza**.
9. Azotobacter forms **cyst** to withstand adverse conditions.

10. Azotobacter chroococcum in Indian soil: 10^4 - 10^5 gm/soil.
11. Beijerinckia indica used to prepare inoculant which fix atm. N **asymbiotically** in **acidic soil** where having high rainfall.
12. Phosphomicroorganisms when used with **rock phosphate** can save about 40% of P requirement of crop.
13. Which element play important role in nitrogen fixation: **Molybdenum**
14. Gene responsible for nitrogen fixation: **Nif gene**
15. Plants absorb nitrates from soil and convert them into- **Ammonia**
16. Bacteria genus is capable of oxidizing ammonia (NH₄)?: **Nitrosococcus**
17. The chief source of nitrogen for green plants is- **Nitrate**
18. During nitrogen fixation the enzyme nitrogenase catalyse the reaction. The reaction is high energy demanding which require approximately- **18 ATP**
19. **Azorhizobium** develops nodules on stem and roots.
20. Series of flavonoid signals that are present in plant organic metabolites lead o **exchange of recognition signals**.
21. All species of Rhizobium possess specific adhesion protein is called **Rhcadhesin**.
22. Rhicadhesin is **calcium binding protein**.
23. Root hair curling due to action of substances secreted by Rhizbium called as **nod factors**.
24. Bacteroid and peribacteroid membrane both form structure is called **Symbiosome**.
25. Actual site of nitrogen fixation in root nodules of leguminous plants: **Symbiosome**.
26. Pigment protect nitrogen fixation enzymes from oxygen: Leghaemoglobin.
27. Nif genes are **plasmid borne**.
28. **nod A,B,C** are responsible for synthesis of oligosaccharide called nod factor.
29. Nif gene organization and regulation of their expression is well studied in free living diazotroph **Klebsiella pneumoniae**.
30. Cyanobacteria fix atmospheric nitrogen by means of special cells called

heterocyst.

31. Shelf life of Rhizobium, Azotobacter and Azospirillum is not more than **6 months**.
32. For storage of cultural packets, a temp. of **20-25⁰ C** is considered satisfactory.
33. **BIS**: Bureau of Indian Standard
34. National biofertilizer Development Centre at **Ghaziabad**
35. **ISI** Indian Standard Institute
36. Book: **Biological control of plant pathogens** written by K.F. Baker and R.J. Cook
37. **Siderophores** are low molecular weight compounds, which possess high affinity for iron and aid transport into cells.
38. **Bacillus subtilis** effectively control Rhizoctonia solani in many crops by producing **Bacilysin and Fengimycin**.
39. **Zwittermicin A** antibiotic obtained from **Bacillus cereus** strain UW 85- Biological control agent for damping off and root rot of soybean.
40. **Agrobacterium radiobacter strain K84** responsible for bacteriocins agrosin 84 which control crown gall disease caused by Agrobacterium tumefaciens.
41. **AMF** arbuscular mycorrhiza fungi
42. **VAM** vesicular arbuscular mycorrhiza
43. No. of viable cells of Rhizobium at the time manufacture **10⁹/gm** of carrier.
44. **CIB** central insecticide board
45. **Trichogramma** is egg parasitoid (endoparasitoid).
46. Mostly used species of Trichogramma - ***T. chilonis*, *T. japonicum***
47. **Cyrtolaemus montouzerri** Lady bird beetle is predator of mealy bugs.
48. **Chrysoperla** Common green lace wing are mass produced on eggs of Rice grain moth ***Corcyra cephalonica***.
49. **NPV** -Nuclear polyhedrosis virus
50. **White halo fungus- *Verticillium lecani***
51. **Metarrhizium anisopliae** infecting Rhinoceros beetle/ grub.

- 52. **PBM-** Peribacteroid membrane
- 53. **MPN-** *most probable number*
- 54. **CIG-** Cross inoculation group.
- 55. **PGPR–** plant growth promoting rhizobacteria
- 56. For neutralization of carrier material, add **calcium carbonate**.
- 57. **White muscardian fungus-** *Baeoveria basiana*
- 58. **Green muscardian fungus-** *Metarrhizium anisopliae*
- 59. Sacchrophilic biofertilizser -**Acetobacter**
- 60. Toxin protein of Bacillus thuringensis- **δ endotoxin- Cry protein**