



Lecture No.: 11

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CORE CONCEPT OF
Group C -Microbiology

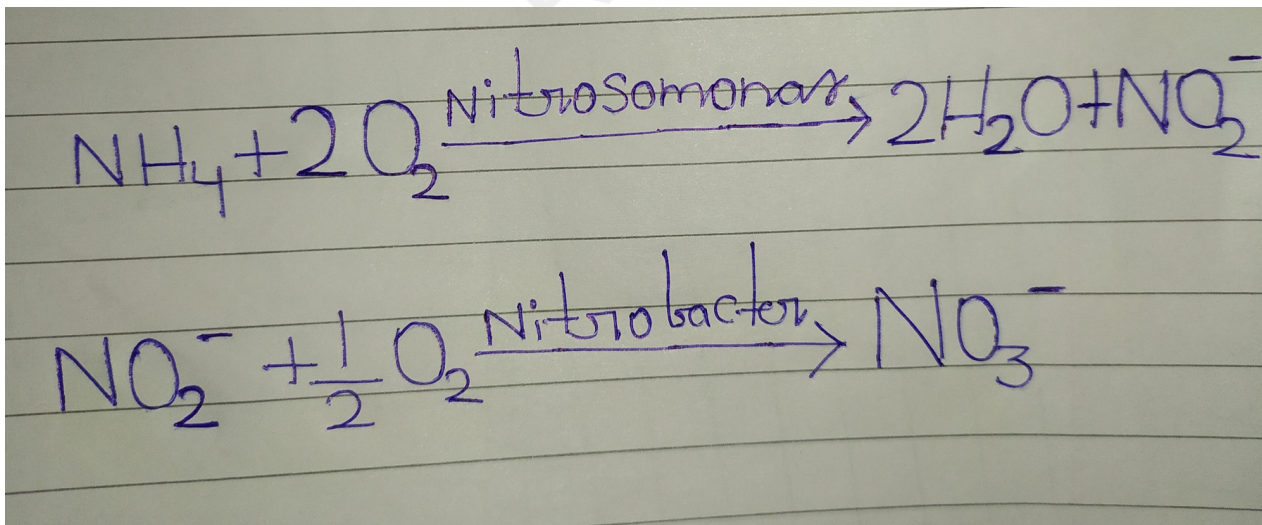
HONS. PART 1
Paper - 1

ROLE OF BACTERIA IN AGRICULTURE AND INDUSTRIES

Bacteria influence our life in various ways and they have many roles in **Agriculture** : - Bacteria also play a very significant role as decomposers in different ecosystem. In this manner they return the nutrients and various gases to the atmosphere. Bacteria along with other soil organisms play a dominant role in soil fertility. It is maintained by making **Nitrogen** available in the form of **Nitrates** to the plant through these bacteria.

(A) Ammonifying Bacteria - They convert amino acids into ammonia and the process is known as **Ammonification**.

(B) Nitrifying Bacteria - These type of bacteria convert ammonium compounds into nitrate and the process is called **Nitrification**.



(C) Nitrogen fixing bacteria - They are of two types - (e.g. Azotobacter , Clostridium etc).



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They live freely in the soil. The Symbiotic nitrogen fixing bacteria (e.g. *Rhizobium leguminosarium*), which are present in the root nodules of leguminous plants, fix nitrogen in the soil and increase the fertility capacity.

ROLE OF BACTERIA IN INDUSTRIES - Bacteria are very helpful in various industries such as Lactic acid bacteria converts milk sugar into Lactic acid which in turn converts milk into curd. Bacteria are used in butter and cheese industries also. Oxidation of alcohol into vinegar are also maintained by bacteria.

Tobacco leaves are flavoured with the help of *Bacillus megatherium*. Tanning of leather and Retting of jute fibres are regulated due to bacteria activity. Certain streptococci and lactobacilli are used for the preparation of silage for the consumption of cows. The dairy industry finds bacteria an essential aid in a number of processes. Butter is sometimes made from cream which has been allowed to undergo ripening - That is a lactic acid fermentation causing it to become sour. A large number of bacteria and actinomycetes have been exploited for production of antibiotics. Streptomycin, Chloromycetin, Aureomycin and terramycin are some important antibiotics derived from actinomycetes.