Date - 04-02-2025 Department of Botany part - II Group - B, Ecology E. Copy paper-III
Online class Dr Sunil pandit, J. J. College, Ara Time - 8:30 - 9:30

Question → Give an account of classification of Communities and point out their main Concepts?

Ans → The classification of Communities has since long been the subject of much Controversy. Some ecologists are of the view that Communities are organised basic units of different species, and thus may be classified according to the principles of systematics. On the Contary, other feels that a community represents simply an assemblage of species with similar environmental Conditions and thus it Cannot be classified. All the classification have broadly been put under two main categories

(i) classification based on habitat, growth from i.e physiognomy.
(ii) classification based on species, dominance, succession etc, ie.
phytosociology :- (i) physiognomic classification → These include the classifications of Humboldt (1908), dividing Communities into two 19 groups. of Grisebach (1875), who included seven main groups, dividing them into as many as 60 types. The main groups were as woody, herbaceous, grasses and so on.

(ii) phytosociological classification → Since the ecologists differed widdely from each other in their phytosociological classification of Communities, hence they proposed classification based on their own traditions. There are five such tradional classifi-Cation with which are as follows:—

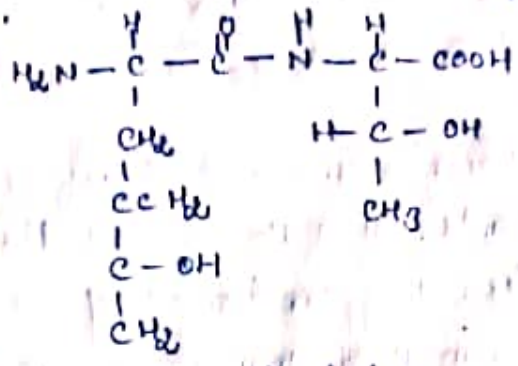
(i) Zurich - Montpellier tradition :— Humboldt (1806) 1806 used the term association for the first time for the unit of a Community.
(ii) Scandinavian tradition :— This tradition was developed in Sardine (at upsala) School of phytosociology by post (1842, 1862) and Hult (1881, 1898).
(iii) Russian traditional :— Different ecologists used the term formation, association association - Complex etc.
(iv) American tradition : In U.S.A Cowles (1899, 1901) gave the name Society to the unit of Community.
(v) British tradition → The British tradition was mostly influenced by Tansley (1904).

Main Concept in the classification of Communities → It is evident from tradition of classification that there are two Concepts in the classifications. So, there developed two main Concept in the classification of Community.

(i) Individualistic Concept :- From all the tradition of classification it seem that there is only different in terminology. According to all of them basic unit of Community

=

(v) Wild fire toxin :→ This toxin is produced by pseudomonas tabaci and it affects RNA directly.



Here is a brief list of some important toxin produced by different microbes –

Name of Toxin	Name of microbes
(i) Fusaric acid	Rhizopus spp
(ii) pyriculol	pyricularia oryzae.
(iii) Tentoxin	Alternaria tenius.
(iv) pyriculasin	pyricularia oryzae.
(v) Fusicoccin	Fusicoccum amygdalae.

Question → What is toxin ? Describe the role of toxin in plant disease or plant pathology - plant pathogens ? Give detailed account of it. ?

Ans → The literal meaning of toxin poison. The toxin is secreted by microbes for creating diseases in the plants. When the microbes attack on the body of plants secrete toxin which paralyses the functioning of the tissue or kill them. The microbes take nutrition from those tissues, increase their number and create diseases in the plant body. It is difficult rather impossible for microbes to survive and create disease without secreting toxin. A number of scientists worked on toxin but scheffer 1976 Rudolf 1976, patil 1974 and strobel 1974 studied the structure and function of toxin in detail.

The toxin may be divided into three types:—

(i) phytotoxin (ii) vivotoxin (iii) pathotoxin

(i) phytotoxin → The toxin which create disease in plants, is called phytotoxin e.g. Alternatic acid, Lycomarasmine.

(ii) Vivotoxin → The toxin which helps microbes in increasing diseases in the host plant. There are a few characteristic of this toxin:-

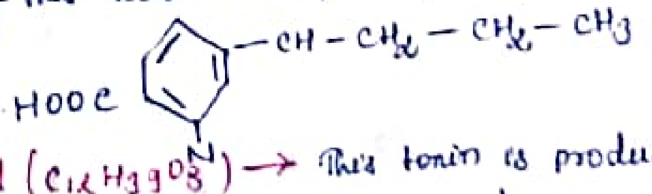
(i) It is found only in diseased plants and not in healthy ones.

(ii) when this toxin is given in a plant, the plant becomes diseased.

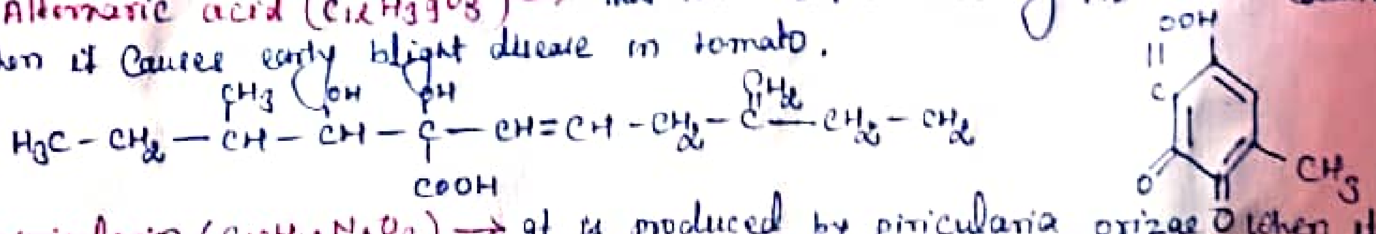
(iii) pathotoxin → This toxin is secreted by microbes in the host tissues. Sometimes the host tissue themselves produce this toxin and sometimes both microbes and host tissues themselves produce this toxin and sometimes.

The description of a few toxins have been given below

(i) Fusaric ~~and~~ acid ($C_{10}H_{13}O_2$) - This toxin is produced by the species of Fusarium. The structure of this acid is as follow: -



(ii) Alternaric acid ($C_{21}H_{30}O_8$) → This toxin is produced by Alternaria solani when it causes early blight disease in tomato.



(iii) piricularin ($C_{18}H_{14}N_2O_3$) → It is produced by piricularia oryzae when it causes rice blast disease in rice plant.

(iv) victorin ($C_{17}H_{26}NO$) → This toxin is mostly produced by pseudomonas tabaci and it affects RNA directly.

P.T.O

may be recognised at one or other level of organisation and are to be classified in one way or other. In all these theories Communities have been recognised as equivalent to a species or an organism Thus each Community is characterised with particular species - dominant Constant etc.

(ii) vegetational Continuum Concept → This Concept was proposed by Whittaker (1948) and Curtis (1959). This Continuum Concept has been supported on the basis on the environmental gradient through gradient analysis or ordination.

Parallel to environmental gradient, there is found vegetational gradient or ecoline. Whittaker (1970) recognised five kinds of ecoline Correlated with climatic Conditions in different geographic areas.