

MODULE 3/3

CHAPTER 13 ORGANISMS AND POPULATIONS

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POPULATION INTERACTION

Members of biotic community depends upon one another for food, reproduction, dispersal & production, the phenomenon is called **species interdependence interaction**.

Types of interactions that occur amongst different members of biotic community are—positive and negative.

POSITIVE OR BENEFICIAL INTERACTION

It is a widespread phenomenon. It includes **mutualism, commensalism, proto-cooperation, scavenging** etc.

Mutualism (+/+) or **Symbiosis** : (coevolution) :

It is a positive interspecific interaction in which members of two different species completely depend on each other for growth and survival.

Physical contact is present in between both the interacting species.

It is an obligatory relationship.

Examples – Termites and flagellates (Trichonympha)

legume plant and Rhizobium.

Lichen, Mycorrhiza etc.

Commensalism (+/0)

It is an association between members of two species in which one is benefited while the other is almost unaffected.

Examples – Orchids, hanging mosses.

E. coli bacteria – Intestine of man

Clown fish – Sea anemone

Proto-cooperation (+/+)

It is an association in which both the organisms are benefited but can live separately.

Examples –

Hermit crab – Sea anemone

Tick bird (Red-billed or yellow billed) – Rhinoceros

Crocodile – Bird

Scavenging, eats the dead bodies of other animals, which have died naturally E.g., Jackal, Vulture, Ant, Crow.

Helotism is an association between two organisms, when one behaves as a master and another as a slave. E.g., Lichen.

NEGATIVE INTERACTION (ANTAGONISM)/DETRIMENTAL

Types of negative interaction are exploitation, amensalism and competition.

Exploitation

One species harms the other by making direct or indirect use of it for support, shelter or food.

It is of two types :

A. Parasitism (+/-) :

. E.g., Tapeworm, Taenia, Ascaris, Entamoeba → Live in intestine of man.

Plasmodium → Lives in R.B.C. of human.

Predation (+/-) : A free living organism which catches and kills another species for food. E.g., Lion, snake Drosera, Utricularia, Nepenthes

Amensalism (-/0)

Type of amensalism are antibiosis and allelopathy.

Antibiosis – secretion of antibiotics E.g.,

Allelopathy is the secretion of toxic chemicals and the plant is always harmed in this case. E.g.,

Sunflower, barley, sorghum, Occimum also show allelopathy.

Silver oak shows autopathy - It destroys its own seed.

Competition

Interaction between two species, where both suffer adverse effects is known as competition.

It is of 2 types – interspecific and intraspecific.

Interspecific competition occurs between two individuals of two different species occurring in the same habitat.

Intraspecific competition occurs between individuals of the same species for mating, food etc.