ECOSYSTEM
SUBJECT-ENVIRONMENT SCIENCE
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Definition

Ecosystem (Gr. eco-environment ; system=interacting and interdependent complex), is an integrated system resulting from interaction of living and non-living factors of the environment.

Term ecosystem was first of all coined by Arthur G. Tansley (1935) Earlier it was called biocoenosis by Karl Mobius (1877).

Ecosystem may be permanent and natural or temporary
Common examples of natural ecosystems are a pond, a lake, a desert, a meadow, a grassland or a forest.
Examples of temporary ecosystem are a protozoan, culture medium, a rainfed pond etc.

ECOSYSTEM STRUCTURE

(Communities of plants, animals and microbes interacting with the environment)

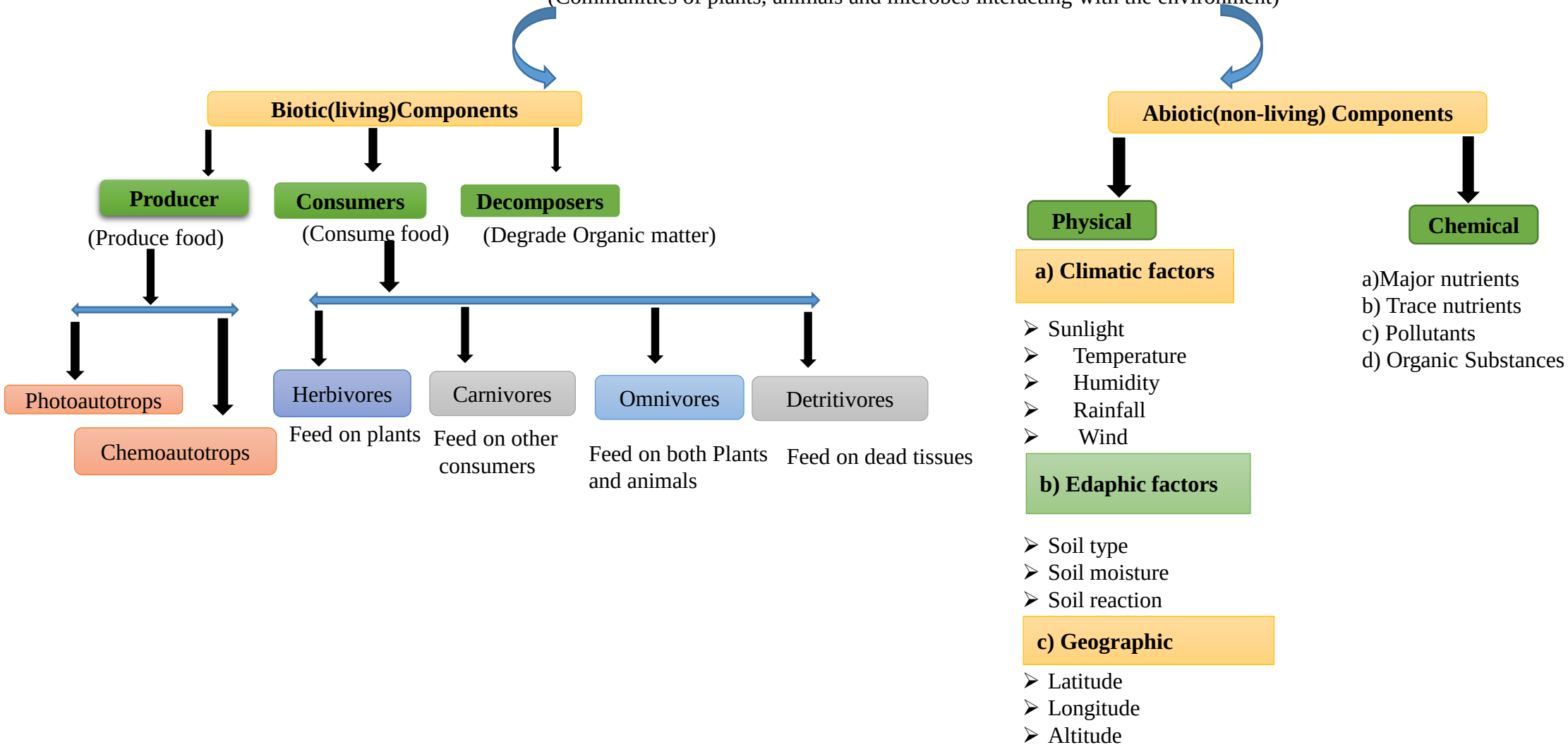

Figure. Basic structure of ecosystem

Ecosystem Components

An ecosystem is made up of two components i.e., biotic and abiotic

Biotic Components : All living organism *i.e.* plants , animals and microorganism that are present in environment constitute

The biotic components of the ecosystem. On the basis of their role in the ecosystem, these can be classified into three main groups.

1) Producers
2) Consumers
3) Decomposers

Producers

They are green photosynthetic plants. So, they are called autotrophs.

In **terrestrial ecosystem**, major producers are herbaceous and woody plants.

In **aquatic ecosystem,** chief producers are phytoplanktons, algae and the floating, submerged and marginal plants found at edges.

Note:

Producers are also known as “converters” or “transducers” because they convert solar energy into chemical energy stored.

Consumers:

They are heterotrops. Consumers are of following types:

a) Primary Consumers (PC) or first Order Consumers: These animals directly feed on producers. They are also called herbivores or key industry animals.(Convert plant matter into animal matter)

b) Secondary Consumers(SC) or Second Order Consumer or Primary Carnivores or Primary Carnivores. They are animals which feed on herbivores.

(c) Tertiary Consumers (TC) or third Order Consumer or Secondary Carnivores or Secondary Carnivores: Carnivores which feed upon secondary consumers *e.g* large fishes (aquatic ecosystem), snake (terrestrial ecosystem).

(d) Top Carnivores: The carnivores which are not eaten by others are called top carnivores. They may belong to the category of primary, secondary, tertiary carnivores. *e.g* tiger, lion, panthers and peacock.

Decomposers:

These are the microorganisms like bacteria, actinomycetes and fungi which breakdown complex organic matter like cellulose , hemicellulose in plants and chitin in animals and release simple substances.

- ❖ They are saprophytic microorganism.
- ❖ They bring about cyclic exchange of materials between biotic community and the environment.

Functions of decomposers in ecosystem:

- ❖ They are natural scavengers as they reduce organic remains of earth.
- ❖ Replenish the soil naturally with minerals that are essential for growth of plants and hence, maintenance of ecosystem.

Abiotic:

The non-living factors or the physical environmental factors prevailing in an ecosystem constitute the abiotic components. They are mainly of three types: i.e., climatic, edaphic and topographic factors.

Physical Factors:

The sunlight and shade, intensity of solar flux, duration of sun hours, average temperature,maximum-minimum temperature, annual rainfall, wind, latitude and altitude, soil type, water availability, water currents etc. are some of the important physical features which have a strong influence on the ecosystem.

Chemical Factors:

Availability of major essential nutrients like carbon, nitrogen, phosphorus, potassium, hydrogen, oxygen and sulphur, level of toxic substances, salts causing salinity and various organic substances present in the soil or water largely influence the functioning of the ecosystem.


THANK YOU