Decomposition

What are decomposers?

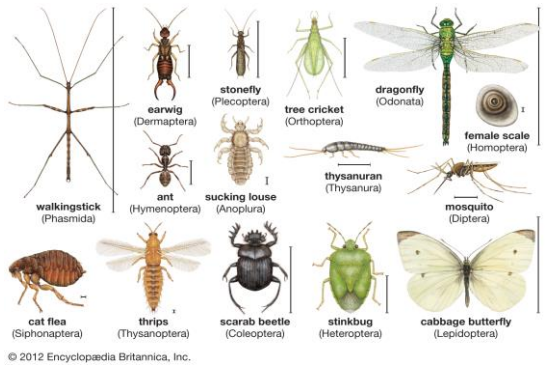
- The non green organism like fungi and bacteria, which are incapable of producing their food, live on dead and decaying plants or animal parts (Detritus) and are consumers of special kinds. They are called decomposers.
- They are also known as saprotrophs.
- They play an important role in maintaining dynamic nature of ecosystems.
- Decomposers carry out **decomposition process** by which complex organic materials of dead remains are broken into simpler compounds that can again be utilized by green plants (Producers).

- Some organic material such as simple carbohydrates, fats and proteins are decomposed rapidly, where as others such as cellulose, ligin, Cutin, hairs, bones and chitin are decomposed very slowly.
- Decomposers release different enzymes from their body into the dead plant and animal remains.
- The **extra cellular digestion** of dead remains lead to the release of simpler inorganic substances.
- It is essentially a vital function in the ecosystem because if it is not happening, all nutrients would have been **tied up in the dead bodies** and no new life could be produced.

- Decomposition process

1. **Formation of particulate detritus** – by physical and biological action coupled with release of dissolved organic matter.
2. **Humification** – Rapid production of humus accompanied by release of additional dissolved organic matter.
3. **Mineralization** – Slower mineralization of humus.

- Decomposition is a complex process.
- No single type of organism performs complete decomposition.
- Bacteria, Fungi and moulds may work together in breakdown process.
- Protozoa, mites, Snails, Earthworms, Millipedes, insects, nematodes



Common examples

- Fungus –*Aspergillus, Rhizopus, Peziza, Mucor, Agaricus, Polyporous, Coprinus, Saprolegnia*,
- Bacteria – *Bacillus, Pseudomonas, Clostridium, Streptococcus, staphylococuss*
- Actinomycetes – *Streptomyces.*

Ecosystem homeostasis

- Natural ecosystems are capable of self regulation and self maintenance, as they are able to maintain a stable steady state.
- Odum defined homeostasis as the tendency of natural ecosystems to resist change and to remain in a steady state of equilibrium.
- There would be a balance between production, consumption and decomposition as well as between all species with in the system.