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*Perspective*

## Brief note on decomposition

Ozzie LaDuke\*

Department of Environmental Science, University of Ibadan, Ibadan, Nigeria.

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### INTRODUCTION

The word decomposition means “to break down”. It is usually accompanied by the dispersion or rupture of a complex organism into a simple inorganic substance. It is one of the most important and important processes in the ecosystem. Decomposition, therefore, is a metabolic process, which takes raw materials in the form of complex compounds, which are processed and converted into simple compounds. Bacteria, fungi and a few other microorganisms initiate the process of decomposition and are known as decomposers. They eat dead living things in order to live. Decaying and dead animals and plants act as immature substances that, in cracking, produce nutrients, carbon dioxide, and water, etc. Detritus is a substance used as dead animals, plants and their remains. The bacteria then process the detritus, collectively known as saprophytes.

### Process of decomposition

Death and decomposition are an integral part of every cycle of life on earth. In order to allow for the continued survival and growth of new plants and animals, old specimens must die and decompose. This process provides essential nutrients for plants and for the growth and development of new organisms.

A complete process of decomposition takes place in five different steps or phases:

**Fragmentation:** It is the initial stage of decomposition. Fragmentation means the breakdown of detritus into smaller pieces by the detritivores.

**Leaching:** Different particles can contain many water-soluble nutrients which are inorganic organisms. These nutrients dissolve in water and enter the soil and fall off during leakage.

**Catabolism:** Once complex substances are broken down into smaller particles and inorganic nutrients are removed, it is time to convert detritus into simple inorganic compounds. This process is carried out by various fungal and bacterial enzymes through the process of catabolism.

**Humification:** It is the process of forming a black layer of amorphous substance in the soil called humus. They can decompose easily as they are highly resistant to bacterial action. The humus layer is very rich in nutrients as it provides high soil fertility.

**Mineralization:** It is a final step in this process. Mineralization is the process of decomposing hummus to extract inorganic nutrients.

### Types of decomposition

Decomposition can be differentiated into two types: abiotic decomposition and biotic decomposition.

**Abiotic decomposition:** In this type of decomposition, the decomposition of an object is done by physical or chemical processes.

Example: Hydrolysis

**Biotic decomposition:** In this type of decomposition, there is a metabolic breakdown of substances into simple components of living organisms.

Example: Fruit rot

### Factors affecting decomposition

Following are the important factors affecting the rate of decomposition:

**Garbage quality:** The degree of decomposition depends on the structural and chemical properties of the waste. For example, litter of bryophytes decomposes in small amounts due

\*Corresponding author. Ozzie LaDuke, [ladukeozzie85@edu.ng](mailto:ladukeozzie85@edu.ng).

to the presence of lignin as a complex chemical.

**Temperature:** Temperature regulates the growth and activity of microorganisms. Temperature varies at different altitudes. Biodiversity and microbial diversity are affected by environmental changes.

**The wind:** The oxygen present in the soil holes helps in the growth of microorganisms. In waterlogged soils, aerobic microorganisms do not exist. Only here anaerobic microorganisms can grow and begin to decompose.

**Soil pH:** The presence of cations and anions regulates soil pH, which in turn contributes to microbial growth.

**Inorganic chemicals:** After decomposition, nutrients such as potassium, sodium, calcium, magnesium are released from the soil. Some of them are used by microorganisms in their growth. Thus, it affects the rate of decomposition.

**Moisture:** Groundwater is responsible for the various physiological processes of microorganisms present in the soil. The growth of microorganisms is therefore controlled by the presence of soil moisture.