PRIMARY AND SECONDARY METABOLITES

- Living organisms are prolific producers of a myriad of organic compounds, collectively known as biomolecules. These compounds include amino acids, sugars, chlorophylls, haems, and many more. They play crucial roles in fundamental or primary metabolic processes such as photosynthesis, respiration, and protein and lipid metabolism. Organic compounds involved in these essential processes are referred to as primary metabolites.
- In contrast, certain plants, fungi, and microbes, belonging to specific genera and families, synthesize a variety of organic compounds that do not participate in primary metabolism. These compounds appear to lack a direct function in the growth and development of organisms and are thus termed secondary metabolites.
- Primary metabolites have well-defined functions and are actively involved in known roles within normal physiological processes. On the other hand, the functions or roles of secondary metabolites in host organisms remain largely unclear. Despite this ambiguity, many secondary metabolites contribute significantly to human welfare. Examples include rubber, drugs, spices, scents, and pigments.
- Some secondary metabolites also hold ecological importance. For instance, certain cyanobacterial secondary metabolites exhibit toxic effects on living organisms. These cyanotoxins, displaying a diverse range, may serve ecological roles as herbicides and insecticides, showcasing the intricate interactions between organisms in ecosystems.

Some secondary metabolites	
Pigments	Carotenoids, Anthocyanins, etc.
Alkaloids	Morphine, Codeine, etc.
Terpenoides	Monoterpenes, Diterpenes etc.
Essential oils	Lemon grass oil, etc.
Toxins	Abrin, Ricin
Lectins	ConcanavalinA
Drugs	Vinblastin, Curcumin, etc.
Polymeric substances	Rubber, Gums, Cellulose