BIOMOLECULES

PRIMARY AND SECONDARY METABOLITES

MICROMOLECULES

- Micromolecules are smaller in size, have low molecular weight (up to 1000 Da).
- Simple in structure, solubility is high, found in gas / liquid /solid form
- Can be organic /inorganic
- Can pass through cell membrane.
- e.g, water, minerals, amino acids and nucleotides.

PRIMARY AND SECONDARY METABOLITES

Thousands of organic compounds including amino acids, sugars, etc biomolecules act as 'metabolites'.

1. Primary Metabolites

- Substances that are required for growth of living organisms.
- Proteins, carbohydrates, fats, amino acids, nucleic acids are the primary metabolites. They are found in all organisms.

2. Secondary Metabolites

- Substances that are not required (waste material) for growth of living organisms.
- However, many of them are useful to 'human welfare' (e.g., rubber, drugs, spices, scents and pigments).

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	Concanavalin A
Drugs	Vinblastin, curcumin, etc.
Polymeric substances	Rubber, gums, cellulose