

31.1. VITAMINS

31.1.1. Introduction

A vitamin is an essential organic compound, required in small amounts by an organism. In 1912, C. Funk coined the term **vitamine**, from the Latin words *vita* which means life and *amine*. In 1920, 'e' was dropped from **vitamine**. The name vitamin is obtained from "vital amines" as it was originally thought that these substances were all amines, although not all vitamins are amines. Vitamins are natural substances found in plants and animals and are known to be essential nutrients for human beings. Human body uses these substances to stay healthy and to carry many vital functions.

Vitamins are essential to keep the body healthy, and a varied diet usually gives all the vitamins required. They do not provide energy (calories) directly, but they regulate the energy-producing processes. With the exception of vitamin D and K, the remaining vitamins cannot be synthesised by the human body and must be obtained from the diet. The 13 essential vitamins of the body (each having a special role to play) help in controlling metabolic processes like cell growth and repair, reproduction and digestion, etc.

31.1.2. Classification

According to their property to be dissolved in fat or water, vitamins are classified as:

- 1) **Fat-Soluble Vitamins:** Vitamin A, D, E, and K are fat-soluble vitamins. These are hydrophobic in nature and are stored in the liver. These are not excreted out of the body; therefore, excessive intake can produce a toxic effect and also result in a condition known as **hypervitaminosis**.
- 2) **Water-Soluble Vitamins:** Vitamin B complex and vitamin C are water-soluble vitamins. These are compounds of carbon, hydrogen, oxygen, and nitrogen. These are not stored in the body, therefore, are required daily in small quantities.

Fat-Soluble Vitamins	Water-Soluble Vitamins
Vitamin A (Retinol)	Vitamin C (Ascorbic acid)
Vitamin D (Cholecalciferol)	Vitamin B Complex
Vitamin E (α -Tocopherol)	B ₁ (Thiamine)
Vitamin K (Phylloquinone)	B ₂ (Riboflavin)
	B ₃ (Niacin)
	B ₅ (Pantothenic acid)
	B ₆ (Pyridoxine)
	B ₇ (Biotin)
	B ₉ (Folacin, folate or folic acid)
	B ₁₂ (Cyanocobalamin)