

27.4.21

D III (Zool. H)

## VITAMINS

Vitamins are essential for the normal health and activity of the body and for the prevention of certain deficiency diseases. The term vitamine was coined by Frank in 1911. Later 'e' was dropped from fruits, vegetables, butter, milk, egg, meat etc.

Vitamins are basically of two types:

- ① Fat soluble such as Vitamin A, D, E and K.
- ② Water soluble such as Vitamin B and C. Different vitamins are as follows:

VITAMIN A: Vitamin A is fat soluble and found in abundance in butter, fish liver oil, cream, egg yolk, carrots, maize peas, beans etc. It is a yellow viscous oil.

Its deficiency causes dryness of cornea blindness and xerophthalmia.

VITAMIN D: This vitamin is also fat soluble. Its deficiency causes rickets in man. For the prevention of rickets, cod liver oil was found useful by Mellanby in 1921. Vitamin D is found in cod liver oil of fish and yolk of eggs. Animal fats also contain very small quantity of vitamin D. Milk is a rich source of Vitamin D.

In rickets legs become bowed and joints become enlarged. Sun light changes a substance in bones into Vitamin D.

VITAMIN E. This vitamin is insoluble in water but soluble in fats. It is colourless. It was discovered by Evans and ~~Sure~~ <sup>1932.</sup> in ~~1932~~.

Vitamin E is found in cotton seed oil, corn oil or wheat germs and plants. Green lettuce and orange peels are also a good source of vitamin E. Green leaves, eggs, meat, butter are also good sources of vitamin E.

In the deficiency of this vitamin the germinal epithelium of testes is destroyed and testes fail to produce spermatozoa. In female the fertilization takes place but the foetus dies. The deficiency of vitamin E causes a muscular dystrophy.

Vitamin K. Vitamin K is fat soluble. This is an essential vitamin for liver. It helps blood clotting. Vitamin K was ~~was~~ invented by Damin in 1934. Vitamin K is found in green leafy vegetables, spinach, cabbage, chestnut, fish meat, milk, eggs etc.

The deficiency of vitamin K causes failure of blood clotting. It also helps in the oxidative phosphorylation process. Vitamin K is available in two forms  $K_1$  and  $K_2$ .

Vitamin B complex: Vitamin B complex consists.

1. Vitamin  $B_1$  (Thiamine)
2. Vitamin  $B_2$  (Riboflavin)

3. Vitamin B<sub>3</sub> (Pantothenic acid)
4. Vitamin B<sub>5</sub> (Niacin)
5. Vitamin B<sub>6</sub> (Pyridoxine)
6. Vitamin B<sub>7</sub> (Biotin)
7. Inositol
8. Choline
9. Vitamin B<sub>9</sub> (folic acid)
10. Lipolic acid
11. Para amino benzoic acid
12. Cyanocobalamin Vitamin B<sub>12</sub>

Vitamin B complex helps in metabolism of carbohydrates, lipids, proteins, nucleic acids etc. It forms coenzymes of different enzymes. Vitamin B-complex is obtained from milk, wheat germ and yeast.

Vitamin B<sub>1</sub> (Thiamine): It is soluble in water. It is stable up to 100°C. It is found in whole grains, legumes, nuts, yeast, eggs, fishes, pork, beet liver, milk, fresh fruits and vegetables.

Deficiency diseases are loss of appetite beri-beri, muscular atrophy and cardiovascular changes occur.