

10.10.2021
10/10/21

VITAMIN C.

B.S. (H) 100
Part II
Part IV

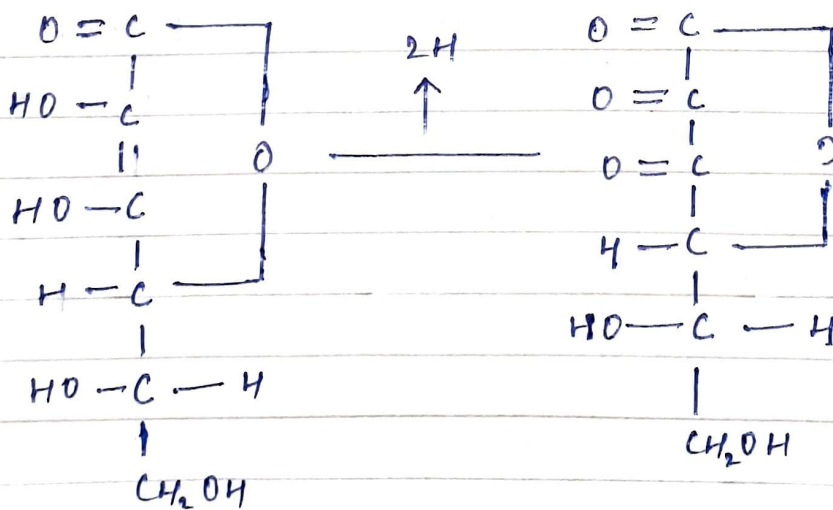
(Ascorbic acid, Antiscorbutic vitamin).

In 1753, Captain James Lind of British Navy showed that the disease SCURVY which was common in sailors could be cured by giving them lemons and oranges.

In 1907, Hoist and Follch, demonstrated that guinea pigs develop scorbatic lesions on a diet of oats and bran. The vitamin was isolated by Szent-Gyorgyi (1928), from orange juice. In 1932, King and Waight, isolated the crystalline vitamin, which had previously, been termed Vitamin C and has been re-named ascorbic acid.

CHEMISTRY:-

The chemical structure of vitamin C resembles that of a monosaccharide. Vitamin C is chemically known as ascorbic acid. It can be readily oxidised to the dehydro form.



Ascorbic acid.

Dehydro ascorbic acid.

SOURCES:-

The best food sources of vitamin C are citrus fruits (lime, lemon, orange), berries, melons, tomatoes, green peppers, raw cabbage, and leafy green vegetables, particularly salad greens. Now, fresh potatoes, which only a fair source of vitamin C on a per gram basis, are excellent sources in the average diet because of the quantities which are commonly used. Animal sources are generally poor except the adrenal cortex.

The vitamin is easily destroyed by cooking, since it is readily oxidised. Mincing of fresh vegetables such as cabbage, mashing of potatoes, canning and other food preparation procedures may destroy a portion of the ascorbic acids in foods.

FUNCTIONS:-

Both forms are physiologically active, and both are found in the body fluids.

- (1). Maintains the normal intracellular material of cartilage, dentine, and bone and the integrity of capillary walls.
- (2). Has a specific role in collagen synthesis.
- (3). Provides resistance against common colds and infections.
- (4). Helps to dissolve cholesterol in blood.
- (5). Plays an important role in wound repair and activated metabolism.
- (6). Protects the body against stress.
- (7). Enhances the absorption of iron from vegetables, cereals and fruits.

DEFICIENCY:-

It has long been known that smoking lowers the body's store of vitamin C, and that pregnant and breast feeding women need more of it. It is also known that those eating institutional food, which is kept hot for long periods, tend to fall short of vitamins.

Severe vitamin C deficiency produces SCURVY. The pathological signs of this disease are skin eruptions, swollen bleeding gums, loosening of the teeth, haemorrhages, poor healing of wounds, easy fractures of bones and increased susceptibility to infections. The infant is usually well supplied with vitamin C at birth, however, infants 6-12 months of age who are fed processed milk formulas, not supplemented with fruits and vegetables, are very susceptible to the development of infantile Scurvy. Elderly bachelors and widowers who may prepare their own foods are particularly prone to the deficiency of vitamin C, a syndrome termed as "bachelor Scurvy".
