

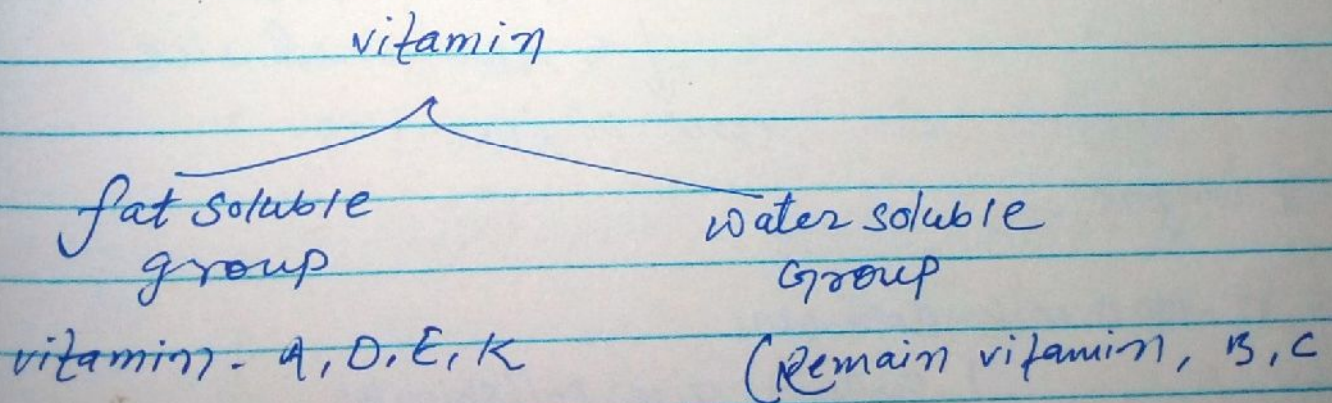
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Vitamin part-1

* Accessory dietary factors or vitamins are organic compounds and are necessary only in very less amounts.

Vitamins cannot be produced by the body & must be supplied in food.

* As a vitamin was isolated, it was named by letter alphabet, but once its structure has been established (almost established), the vitamin has generally been renamed.



* vitamins are closely associated chemically
viz. vitamin A₁ & A₂ etc.

* many water-soluble vitamins have one common feature and that is their ability to take part in reversible oxidation-reduction processes. Thus they form a part of various co-enzymes.

Water Soluble Groups of vitamins

Vitamin B-Complex.

* Eijkman (1897)

Bird eat polished rice

↳ develop polynneuritis

↓ ← unpolished rice
cure polynneuritis.

* Griggs

man with Beri-beri

↓ supply rice polishings

cure Beri-beri

Beriberi = polynneuritis

↳ form of paralysis.

* Origins Suggest some active substance in rice polishings

↳ Funk (1911-12)

↳ concentrate active compound from rice polishings and separate organic base
he named the active compound is vitamin.

↳ it is found that 'vitamin B' was a complex mixture.

① Vitamin B₁, thiamine (Aneurin)

↳ Thermolabile

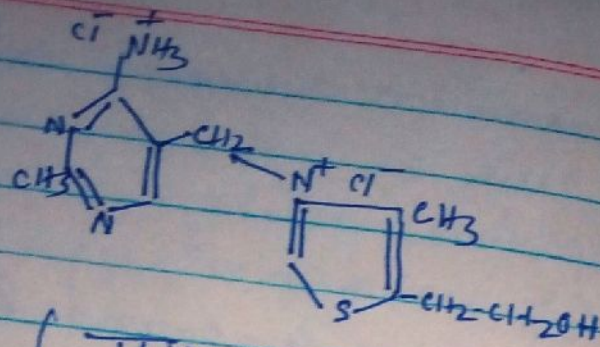
↳ cause beriberi when deficient.

↳ Antineurotic factor (aneurin)

↳ Source rice polishings & yeast, egg.

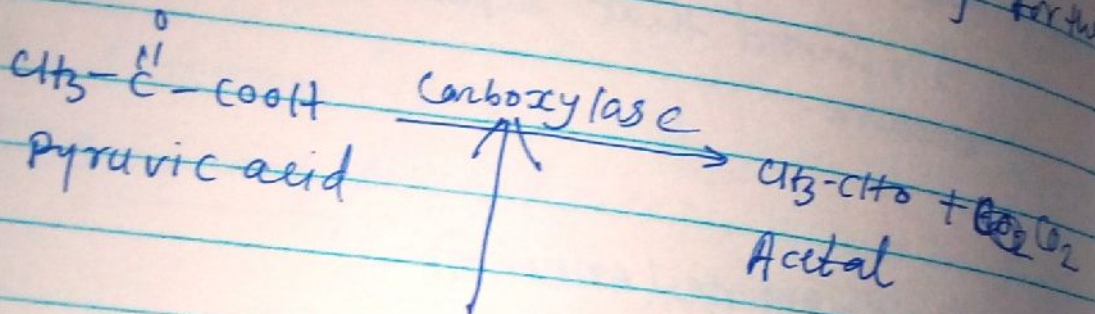
↳ M. formula: $C_{12}H_{19}Cl_2N_4OS$

decompose
Compound A - $C_6H_9NO_5$ Compound B - $C_6H_9N_3O_3S$

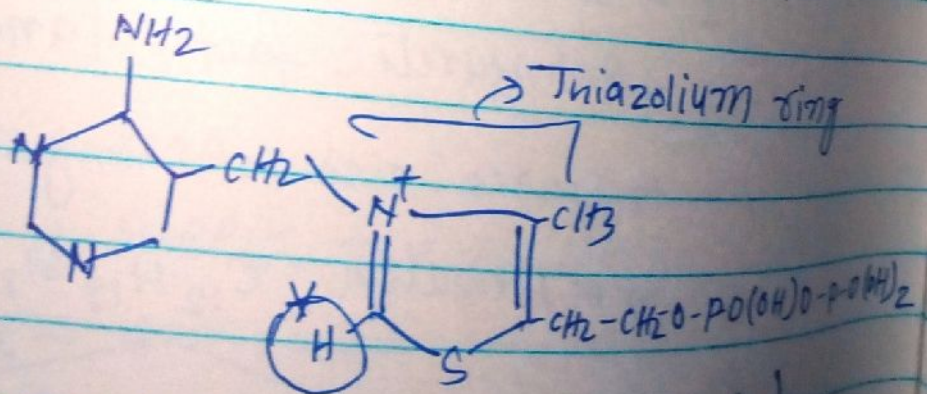


(Thiamine chloride hydrochloride)

This form has been used commercially for the production of thiamine.



Coenzyme is pyrophosphate of thiamine



Co-carboxylase is $\frac{2}{3}$. Ans Thiamine pyrophosphate.

(H⁺) - C₂ proton on the thiazolium ring are ionize during action of carboxylase.

* Thiamine oxidize with alkaline potassium ferrocyanide form thiochrome (yellow basic solid)
↳ Isolated from yeast
by Kuhn (1935).

(2) Vitamin B₂, riboflavin (lactoflavin), C₁₇H₂₀N₄O₆
↳ Thermostable
↳ widely distributed; yeast, G. vegetable, milk, meat etc.
↳ chemically closely related to the yellow water soluble pigments known as flavins (isoalloxazines)
↳ Riboflavin bright yellow powder
Showing green fluorescence.
↳ soluble in water & ethanol.
↳ λ_{max} 565 nm