



**Food Fortification
Resource Centre**

Set up by FSSAI with Support from TATA TRUSTS



FORTIFIED
SAMPOORNA POSHAN
SWASTH JEEVAN

Vitamins Natural or Synthetic

Prevalence of micronutrient deficiency diseases is an important public health concern. This can be best addressed through fortification of staple food for mass consumption with the required micronutrients.

Micronutrients are produced in plants and animals through enzymatic processes. However, the industrial production of synthetic micronutrients is carried out through microbial fermentation, or chemical synthesis, followed by extraction.

Many fruits and vegetables are good sources of vitamins, like oranges for vitamin C, carrots for vitamin A (carotene), brown rice for vitamin E etc. On the other hand, animal products like milk, meat and fish are better sources of vitamins A, D, E, B12 etc.

One would think that natural vitamins are superior to synthetic because it relates to fresh fruits, vegetables and food. However, irrespective of the source, whether natural or synthetic, the molecular structure and activity or potency of a vitamin is almost identical.

For examples comparative bioavailability studies in humans have shown no differences between synthetic and natural vitamin C, regardless of the subject population, study design or intervention used. Some pharmacokinetic studies in humans have shown transient and small comparative differences between synthetic and natural vitamin C, although these differences are likely to have minimal physiological impact.

More than 95% of all vitamins sold today fall into the synthetic category. For using vitamins from dietary sources, besides their availability and affordability, there are issues related to adjusting potency or dosage, their bioavailability, and food sensitivities of the population.

Therefore, for mass fortification, synthetic vitamins are used keeping in view their year round availability, affordability, and no issues related to food sensitivities and potency.

For more information on food fortification, visit www.ffrc.fssai.gov.in