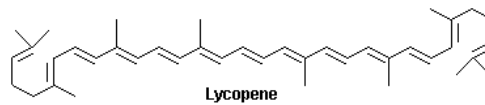


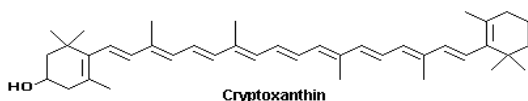
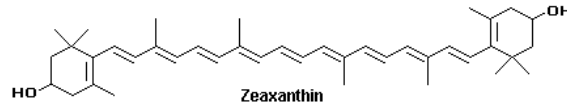


The carotenoids are lipophilic molecules which are synthesized only by plants and photosynthetic bacteria.

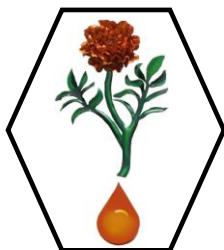
The carotenoids are classified according to chemical structure in carotenes, which do not have oxygen



The carotenoids are according to chemical structure in xanthophylls, which have oxygen.







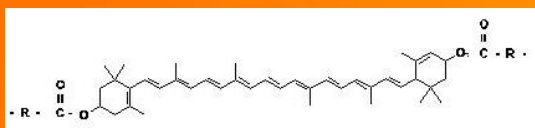
Pigmentine

Important carotenoids for skin chicken pigmentation

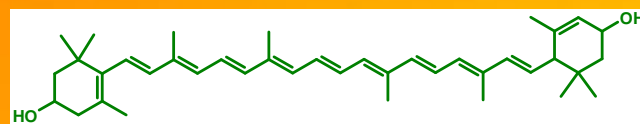
The marigold flower contains lutein fatty acid esters and zeaxanthin fatty acid esters. These pigments need to be saponified in order to make them bioavailable for the chicken.

Another sources of bioavailable carotenoids in poultry feed are maize, maize gluten, and alfalfa.

Saponification of lutein and zeaxanthin esters from marigold flower

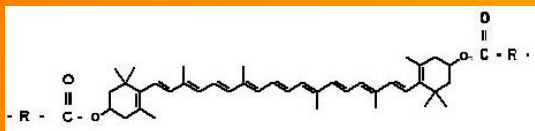


Lutein fatty acid esters

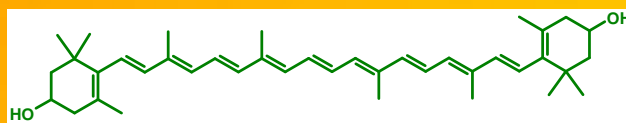


Lutein

Saponification with high temperature and alkali



Zeaxanthin fatty acid esters



Zeaxanthin