meso-ZEAXANTHIN: A POTENTIAL CAROTENOID FOR BROILER AND EGG YOLK PIGMENTATION

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Zeaxanthin is one of the most widespread carotenoids in nature. It is found in maize, maize gluten and marigold flowers together with other carotenoids at different concentrations and in different ratios. Individually, zeaxanthin gives a predominantly orange deposition in the skin of broilers and in egg yolks, more than most other natural carotenoids. Unfortunately, there is not a source of zeaxanthin with a constant concentration that can be used in the poultry industry in order to standardise the concentration of this carotenoid during feed preparation.

Recently, an industrial process has been developed in which the natural esterified yellow lutein found in the oleoresin from marigold extracts (approximately 82%) may be converted to a 25:75 mixture of free yellow lutein and orange meso-zeaxanthin. The meso-zeaxanthin has the same double bond arrangement as zeaxanthin but an opposite stereochemistry in the hydroxyl group at the 3'-ring of the carotene backbone. Therefore, the new process converts the natural ratio of high lutein/low zeaxanthin found in marigolds to high meso-zeaxanthin/low lutein.

![Zeaxanthin](image)

zeaxanthin

![Meso-Zeaxanthin](image)

meso-zeaxanthin

There are no reports in the scientific literature which indicate possible uses for meso-zeaxanthin in the poultry industry. Now that an efficient method for the production of meso-zeaxanthin has been developed studies are being carried out to determine the potential of this product as a feed additive for the pigmentation of broilers and egg yolk and to establish economic comparisons with other carotenoid sources presently on the market. These pigmentation studies correlate different meso-zeaxanthin concentrations as well as several inclusion rates in the feed.

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