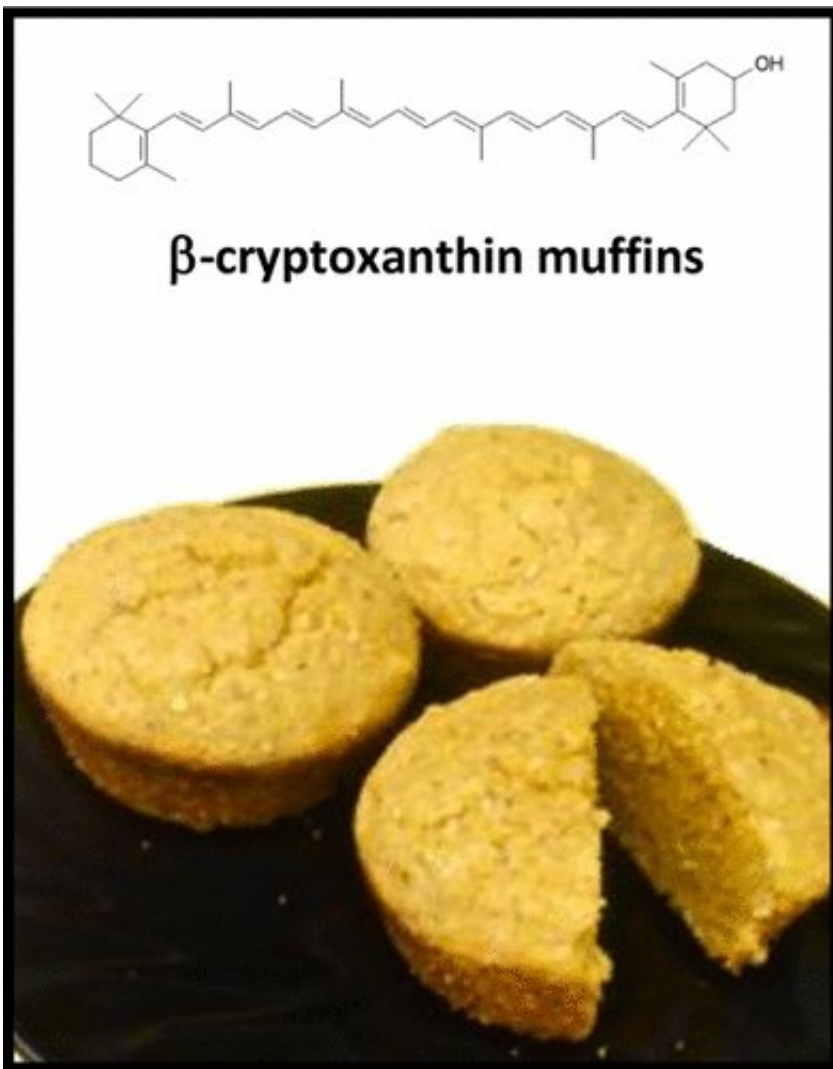


After cooking, biofortified corn and eggs retain nutrient needed to prevent blindness

November 15 2017



Credit: American Chemical Society

Fortified and biofortified foods are at the forefront of efforts to combat vitamin A deficiency worldwide. But little is known about what influence processing may have on the retention of vitamin A precursors in these foods. Now in a study appearing in *ACS Omega*, scientists report that a high percentage of these healthful substances—in some cases, almost all—can survive cooking, depending on the preparation method.

Vitamin A deficiency is a common problem in Africa and Southeast Asia, causing an estimated 250,000 to 500,000 children to become permanently blind each year. Vitamin supplementation has helped. But scientists are also investigating ways to produce hybrid crops, such as corn, that contain more carotenoids, which are vitamin A-precursors that the body uses to manufacture the [vitamin](#) itself. Eggs are another source of these carotenoids, and researchers are attempting to boost the amount of these compounds in yolks. Sherry A. Tanumihardjo and colleagues wanted to find out whether cooking affects [carotenoid](#) levels in food.

In a series of experiments, the researchers cooked corn flour and eggs biofortified with carotenoids in various ways. Then, the foods were evaluated using high-performance liquid chromatography. Boiled porridge retained the highest percentage of these compounds, while deep-fried cornmeal puffs (commonly known as "hush puppies") retained the least. Microwaving, pan-frying and hard-boiling eggs preserved carotenoids, but scrambling caused some destruction. Overall, the researchers conclude that these substances can be well-preserved when using most types of household cooking methods.

More information: Margaret Sowa et al. Retention of Carotenoids in Biofortified Maize Flour and β -Cryptoxanthin-Enhanced Eggs after Household Cooking, *ACS Omega* (2017). [DOI: 10.1021/acsomega.7b01202](#)

Abstract

Biofortification of crops to enhance provitamin A carotenoids is a strategy to increase the intake where vitamin A deficiency presents a widespread problem. Heat, light, and oxygen cause isomerization and oxidation of carotenoids, reducing provitamin A activity. Understanding provitamin A retention is important for assessing efficacy of biofortified foods. Retention of carotenoids in high-xanthophyll and high- β -carotene maize was assessed after a long-term storage at three temperatures. Carotenoid retention in high- β -cryptoxanthin maize was determined in muffins, non-nixtamalized tortillas, porridge, and fried puffs made from whole-grain and sifted flour. Retention in eggs from hens fed high- β -cryptoxanthin maize was assessed after frying, scrambling, boiling, and microwaving. Loss during storage in maize was accelerated with increasing temperature and affected by genotype. Boiling whole-grain maize into porridge resulted in the highest retention of all cooking and sifting methods (112%). Deep-fried maize and scrambled eggs had the lowest carotenoid retention rates of 67–78 and 84–86%, respectively.

Provided by American Chemical Society

Citation: After cooking, biofortified corn and eggs retain nutrient needed to prevent blindness (2017, November 15) retrieved 23 June 2024 from <https://phys.org/news/2017-11-cooking-biofortified-corn-eggs-retain.html>

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