



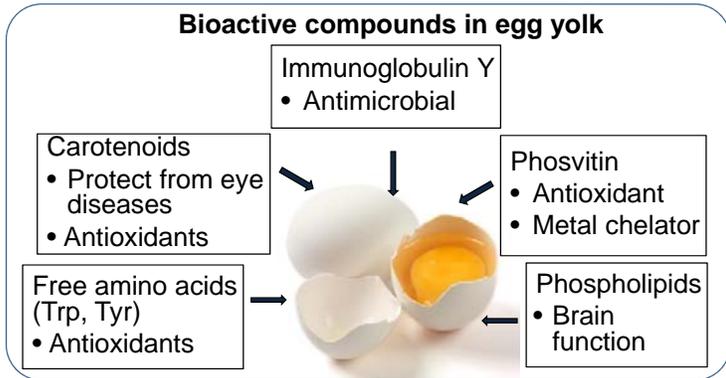
Antioxidants in Egg Yolk

Chamila Nimalaratne, Andreas Schieber, Jianping Wu

Project timeline: January 2012 – December 2012

Our previous study demonstrated the presence of antioxidant amino acids in egg yolk, which prompted our further studies to establish the evidence that yolk is an antioxidant rich food commodity. Egg yolk was extracted in a stepwise procedure to obtain four fractions containing carotenoids, tocopherols, free amino acids, and phosvitin, respectively. Effects of cooking on the amount and antioxidant activity were also determined. The results indicated that eggs are rich in antioxidants and cooking can change the activity. Our next study is to find the effects of gastrointestinal digestion on the antioxidant activity.

Background



- Objectives**
- To determine the total antioxidant activity of egg yolk
 - To find the effect of cooking on yolk antioxidant activity

Our Approach

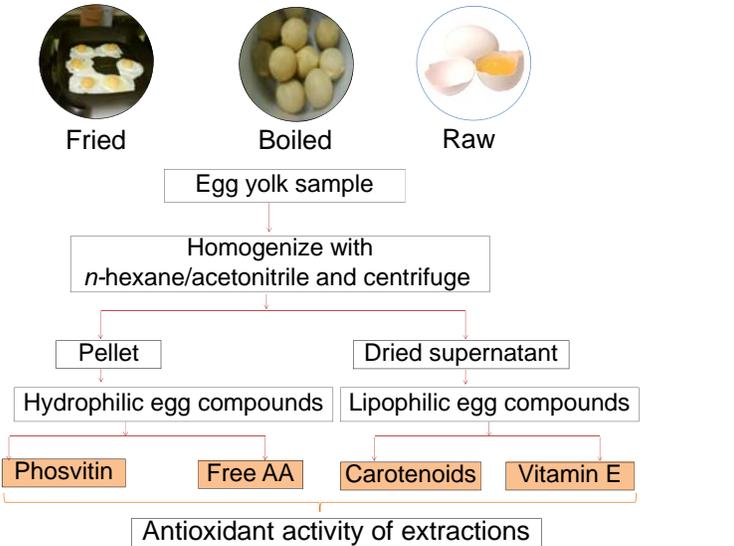


Figure 1: Extraction of cooked egg yolk

Our Observations

- Quantities of carotenoids (lutein, zeaxanthin), vitamin E, free amino acids were reduced after cooking
- Free amino acids showed the highest antioxidant activity among all fractions while phosvitin, carotenoids, and vitamin E also contributed to the total antioxidant activity.

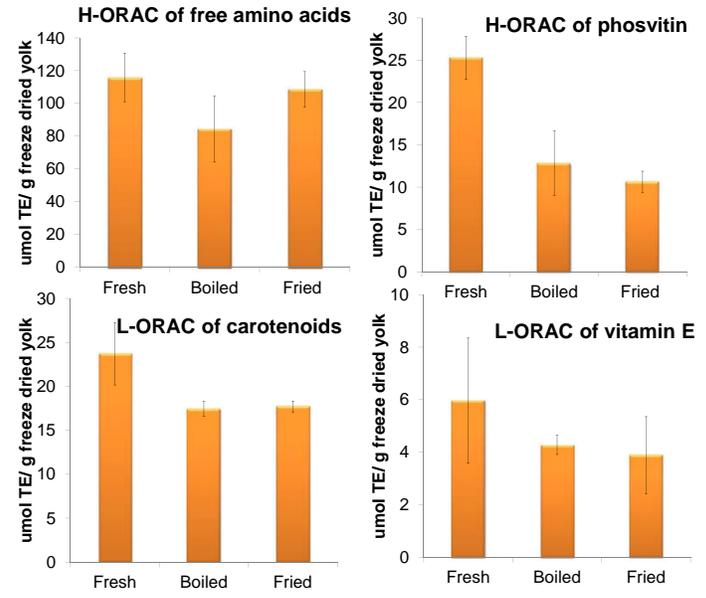


Figure 2: ORAC (hydrophilic/ lipophilic) of free amino acids, carotenoids, phosvitin and vitamin E in egg yolk samples

What Does this mean?

- In addition to its well-known nutrients, eggs are rich in antioxidants such as free amino acids, carotenoids and phosvitin etc.
- Different cooking methods can change the antioxidant activity and the amount of bioactive compounds
- Results help better understand the health benefits of eggs and also to select appropriate processing conditions to minimize the nutrient loss.

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Contact Information

Dr. Jianping Wu
jianping.Wu@ales.ualberta.ca
 Phone: 1-780- 492-6885

Chamila Nimalaratne
nimalara@ualberta.ca
 Phone: 1-780- 966-1320