Conjugation of ovotransferrin with catechin showed improved antioxidant activity

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Summary

Ovotransferrin, a protein from egg white, conjugate with catechin, an antioxidants found in green tea. The conjugates showed improved antioxidant activity, and it could be a potential source of protein antioxidants.

Problem

➢Reactive oxygen species and free radical-meditated reactions can cause oxidative damage to cell and therefore lead to diseases, such as aging and cancer.

➢Considering the potential adverse effects of the synthetic antioxidants (e.g., BHT), the utilization of antioxidant protein could provide not only an additional nutritional value, but desired functional properties, e.g, emulsion and foaming properties.

➢Ovotransferrin (OTF), representing 12-13% of the total egg white, is a member of transferrin family with antimicrobial and antioxidant activity. The purpose of the study is to improve the antioxidant activity of OTF through conjugation with catechin.

Our Approach

Our Observations

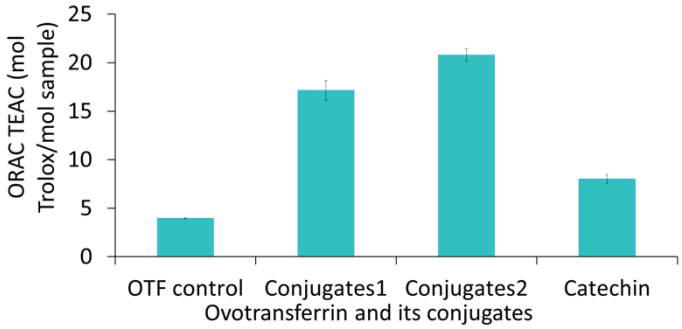

Figure 1. Oxygen radical absorbance capacity (ORAC) of ovotransferrin (OTF) and OTF-catechin conjugates

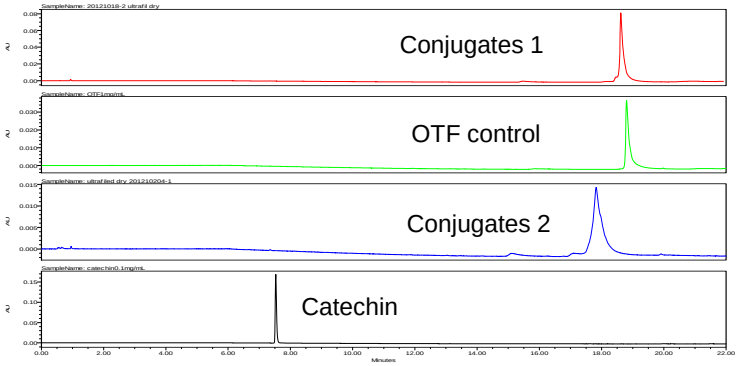

Figure 2. Ultra performance liquid chromatography of OTF and OTF-catechin conjugates, wavelength 280nm

➢Grafting ovotransferrin with catechin is an effective way to improve antioxidant activity of protein.

➢Covalent bond between ovotransferrin and catechin was confirmed by fluorescence analyses, ultra performance liquid chromatography.

What Does this mean?

This effective conjugates of ovotransferrin and catechin are heralding an opportunity for their potential candidacy as a nutraceutical and functional food ingredient.

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