



# 2014 Annual Conference & Exhibition

## Functional Foods, Nutraceuticals, Natural Health Products, and Dietary Supplements

14-17 October 2014, Istanbul - Turkey



### Conference Co-Organizers

Dr. Fereidoon Shahidi (Canada)  
Dr. Chi-Tang Ho (USA)  
Dr. Debasis Bagchi (USA)  
Dr. Cesarettin Alasalvar (Turkey)

### Local Conference Chair

Dr. Cesarettin Alasalvar (Turkey)

### Important Dates

Abstract Submission Deadline: **July 07, 2014**  
Notification of Acceptance: **July 18, 2014**  
Early Bird Registration Deadline: **August 15, 2014**

### Conference Venue

Istanbul Military Museum & Culture Site



[www.isnff2014.org](http://www.isnff2014.org)



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## **Indicaxanthin from *Opuntia Ficus Indica* exerts antioxidant and anti-inflammatory effects in an *in vitro* model of human corneal dysfunction.**

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Indicaxanthin is a betalainic phytochemical from Cactus Pear Fruit (*Opuntia Ficus Indica*). We have recently showed that this compound is a reducing molecule, able to penetrate cells and counteract oxidative damage *in vitro*. Moreover, it behaves as a signalling molecule modulating specific redox-dependent pathways *in vitro*. Remarkably, indicaxanthin is highly bioavailable and has been suggested to play a key role in the antioxidative effects associated with the consumption of the fruit. In this work we have investigated the antioxidative and anti-inflammatory effects of indicaxanthin in an *in vitro* model of human corneal dysfunction.

Human corneal epithelial cells were cultured as previously described [5]. Antioxidative effects were evaluated as reactive oxygen and nitrogen species (RONS) production in H<sub>2</sub>O<sub>2</sub>-stimulated HCE, by flow cytometry. Anti-inflammatory effects were assessed as the release of TNF- $\alpha$  and IL-1 $\beta$  in LPS-activated HCE by ELISA.

Our results show that indicaxanthin inhibits RONS production in H<sub>2</sub>O<sub>2</sub>-stimulated HCE in a concentration range between 5 and 50  $\mu$ M with a maximum inhibition of 80.2% (P<0.001). These antioxidative effects were paralleled by a significant reduction of both IL-1 $\beta$  and TNF- $\alpha$  release in LPS-activated HCE by the phytochemical. Indicaxanthin, indeed, concentration-dependently inhibited the release of both cytokines with a maximum inhibition of 75.2 and 86.4% respectively (P<0.001).

Together these results indicated that indicaxanthin protects HCE exerting strong antioxidative and anti-inflammatory effects *in vitro*.