Nutritional Science-2013

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Nutritional Science & Therapy

July 15-17, 2013 Courtyard by Marriott Philadelphia Downtown, Philadelphia, USA

Evolutions of Sulforaphane in White Cabbage Outer Leaves (*Brassica oleracea* L. var. capitata) during different drying methods

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Abstract

It has been reported that outer leaves of white cabbage, by-products after preparation from consumer market and agricultural processing plant, has a potential to transform into antioxidant dietary fiber (DF) powder. In addition of abundant in antioxidants, cabbage DF powder also contains sulforaphane that possesses high anticarcinogenic activity. This compound can be derived from glucoraphanin, a glucosinolate found in *Brassica* vegetables including cabbage, by the action of myrosinase. Since sulforaphane formation involves enzymatic reaction, sulforaphane content could be enhanced via appropriate thermal processing to accelerate the myrosinase activity. Cabbage outer leaves were dried using three drying methods, i.e., hot air drying, vacuum drying (at 5 kPa) and low-pressure superheated steam drying (at 5 kPa) at 60°C. Sample temperature as well as sulforaphane content in the sample were monitored during drying. The results showed that an increase in sulforaphane content occurred during the early period of drying and the degradation of sulforaphane took place once the cabbage temperature exceeded 52 °C. Longer drying time also contributed to the higher loss of sulforaphane in the DF powder. Vacuum drying was recommended for drying of cabbage outer leaves as it gave the highest retention of sulforaphane.

Biography

Yardfon Tanongkankit completed her Ph.D. in 2012 from King Mongkut's University of Technology Thonburi (KMUTT), Thailand. She has 4 publications in reputed journals.