MALAYSIAN JOURNAL OF NUTRITION

Peer-reviewed Journal of the Nutrition Society of Malaysia
(Persatuan Pemakanan Malaysia)
(http://www.nutriweb.org.my)

The Journal

- Serves as a forum for the sharing of research findings and information across broad areas in nutrition
- Publishes original research reports, topical article reviews, book reviews, case reports, short communications, invited editorials and letters to the editor.
- Welcomes articles in nutrition and related fields such as dietetics, food science, biotechnology, public health and anthropology

Malaysian Journal of Nutrition
Vol. 16 No. 2, 2010

Contents

Subscriptions

Malaysian Journal of Nutrition is published three times in a year, in April, August and December.

Please enter my subscription to *Malaysian Journal of Nutrition*, volume _____

Subscription rates per year

	Malaysia	Other countries*
Individual	RM 50.00	USD 50.00
Institution	RM 100.00	USD 100.00

* Please add USD5.00 per issue for airmail surcharge

Method of Payment

Cheques (Malaysia only) or bank drafts should be made payable to **Nutrition Society of Malaysia** and addressed to:

Hon. Treasurer
Nutrition Society of Malaysia
Department of Nutrition and Dietetics
Faculty of Medicine and Health Sciences
Universiti Putra Malaysia
43400 UPM, Serdang, Selangor Malaysia

Printed by
Aslita Sdn Bhd
20, Jalan 4/10B
Spring Crest Industrial Park
68100 Kuala Lumpur

Mal J Nutr 16(2) : v-vi, 2010

EDITORIAL

Beyond Antioxidant Functions

Much has been written on the protective effects of dietary bioactive compounds against several diseases of public health importance, including type 2 diabetes, cardiovascular disease, and cancers. The pathogenesis of these chronic diseases may feature elements of oxidative damage and inflammation. In this respect, bioactive compounds in foods that have antioxidant actions have been extensively investigated. Antioxidants act either directly in neutralising free radicals or indirectly as co-factors of antioxidant enzymes. Through these actions, antioxidants reduce, if not eliminate, free radical damage to cellular DNA, lipids and proteins.

In recent years, new hypotheses have emerged that provide a broader perspective in explaining the protective actions of dietary antioxidants that extend beyond their established function as scavengers of free radicals. Take the case of whole-grain cereals. In a recently published review, Fardet (2010) put forward new mechanisms of action for antioxidants. For example, polyphenols have been found to act on cell signaling pathways thereby modifying gene regulation and cell redox status. "There is a strong link between the intra- and/or extra-cellular actions of polyphenols, redox cell status and gene regulation, hence broadening the notion of antioxidant polyphenols to activities other than just free radical scavenging." The health benefits derived from consuming whole-grain cereals are believed to be multi-factorial, brought about by the synergistic action of numerous bioactive compounds, which are mainly contained in the bran and germ fractions of cereals. Examples include sulfur compounds that are precursors of GSH, as well as methyl donors and lipotropes (betaine, choline) that may be involved in cardiovascular and/or hepatic protection, improving lipid status and DNA methylation.

Hollman (2010) has also drawn attention to the multi-faceted actions of bioactive compounds in foods. Based on a meta-analysis of human intervention studies, he found little evidence of flavonoid-rich foods affecting biomarkers of lipid peroxidation, thereby raising doubts on *in vivo* antioxidant effect of flavonoids. "Flavonoids have a limited bioavailability and only low concentrations are present in the systemic circulation and tissues. The extensive metabolism of flavonoids during absorption and distribution in the body greatly diminishes their antioxidant activity."

Nature has endowed our plant foods with an amazing array of bioactive phytochemicals. While epidemiological and experimental studies have unraveled the actions of many of them in relation to human health, many more remain elusive, awaiting investigation into their pharmacodynamics. Is it through their actions on endothelial function, platelet activity, glucose tolerance, cholesterol or other pathways that cancer and cardiovascular morbidity and mortality are modulated? Evidence is mounting for the multi-factorial synergistic action of these bioactives in bringing about their health benefits, beyond one-dimensional action only.

Khor Geok Lin
International Medical University

REFERENCES

Fardet A (2010). New hypotheses for the health-protective mechanisms of whole-grain cereals: what is beyond fibre? *Nutr Res Rev* 23:65-134.

Hollman PCH (2010). Flavonols and stroke, a meta-analysis. Is the antioxidant activity of flavonoids relevant for cardiovascular disease? 4th Tea Science Syposium in Jakarta, Indonesia on July 13 2010. Lipton Tea Institute, Unilever Research and Development, United Kingdom.