

LETTER TO THE EDITOR

An Enhanced Multifunctional Food: Beer

Dear Editor,

Does beer deserve the recognition and applause afforded to a beverage multifunctional food⁴? By definition, multifunctional foods provide a “spectrum of health benefits” above and beyond that expected from their calculated food value and vitamin and mineral content, along with a negligible “index of dysfunctionality.” Tea has achieved this status *inter alia* because of its polyphenolic components, such as quercetin—a flavonoid antioxidant that can protect the body from the deleterious effects of reactive oxygen species (ROS), generated *in situ*³.

The polyphenolic content of beer also is indeed highly significant; despite some removal of protein-tannin complexes to prevent chill-haze formation in some parts of the world^{1,2}.

In this connection, beer should indeed adopt the accolade of multifunctional food; plus any additional polyphenolic-metabolism advantages associated with its moderate ethanol content, for gastrointestinal-tract bio-availability.

Yours sincerely,

Alan Wiseman

E-mail: a.wiseman@surrey.ac.uk

Biochemistry Group, School of Biomedical & Life Sciences, University of Surrey, Guildford GU2 7XH, UK

and

Len Woods

Woodside Consulting, 14a The Spinney, Camberley, Surrey GU15 1HH, UK

REFERENCES

1. Tucker, G. and Woods, L.F.J., *Enzymes in Food Processing* (2nd ed), Blackie & Sons, Glasgow Scotland, 1997.
2. Wiseman, A. (ed), *Handbook of Enzyme Biotechnology: 3rd Edition*, Ellis Horwood, (Prentice Hall), Hemel Hempstead, England, 1995.
3. Wiseman, H., Goldfarb, P., Ridway, T. and Wiseman, A., *Biomolecular Free Radical Toxicity: Causes and Prevention*, John Wiley & Sons, UK, 2001.
4. Wiseman, A., Woods, L.F.J. and Ridgway, T., Bioprocessing to generate “multifunctional “ foods? *Trends Biotechnol.*, 2001, **19**, 89-90.