Analytica Acta-2013

OMICS Group Conferences
Accelerating Scientific Discovery

4th International Conference and Exhibition on
Analytical & Bioanalytical Techniques

October 15-17, 2013 Las Vegas, NV, USA

Trick or treat, is the super food boost (Beetroot juice, spinach powder) best for nitrates supplementation? Which measure should we trust?

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Abstract

The primary aim of this study was to evaluate and compare the efficacy and suitability of the use of beetroot juices against nitrate rich spinach powder in supplementation studies. To carry out the analysis of nitrates and nitrites, a new extraction method followed by ion chromatography method was developed and validated. The developed method showed higher efficiency and better recovery. On one hand, the results from beetroot juices showed that the levels of nitrate were not only different from what was shown on the labels but the amounts were deteriorating over time when the contents of the bottles were left unconsumed after opening or when tested under stomach pH conditions. On other hand, the measured levels of nitrate and nitrite in spinach powder were found to be constant over time and under stomach pH conditions with minimal deterioration. This challenges the authenticity of the data produced by the use of beetroot juice drinks in supplementation studies. This study further concluded that powdered forms (including spinach) are a better option as compared to juices, for two reasons: 1) the level can be measured in the aggregated sample (1kg) so it is easier than measuring each bottle; and 2) for spinach powder, it is easier to design a placebo control study, although lately beetroot juices are available from the companies without nitrite for this purpose but the supply is limited to selected research groups.

Biography

Iltaf Shah has completed his PhD and postdoctoral studies from Kingston University School of Pharmacy and Chemistry. He is a lecturer and Research Scientist at Kingston University London. He has published more than 22 papers in reputed journals and scientific conferences and he has teaching and research interest in the analysis of vitamins, drugs of abuse and antioxidants in human body matrices using HPLC, GCMS and LC-MS/MS.