

Ups and downs of the LCMSMS challenge for the analysis of water-soluble B-vitamins

Katia De Wasch, Tom Benijts, Christine Van Breusegem, and Frank Benijts

Laboratory ECCA NV, Ambachtsweg 3, 9820 Merelbeke, Belgium

Abstract

Vitamins have been produced as commodity chemicals and made widely available as inexpensive pills for several decades, allowing supplementation of the dietary intake. Our food has become 'convenience' food and is fortified with vitamins, hoping to convince the consumer to live a healthier life including these products in his diet.

Water soluble B-vitamins can be extracted from a whole variety of matrices, present in a wide range of concentrations. The challenge for a routine private lab is to provide a generic solution that works for all matrices with the analytes present in different concentrations. The structurally different B-vitamins are influenced by matrix effects preventing an accurate quantification.

The use of internal standards and injection of different dilutions can help to overcome these problems. An LCMSMS approach using different internal standards illustrates how the use of internal standards and different dilutions of the extracts can give rise to different interpretations of the quantitative results.