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Validated method for determination of total amino acids in rice using Reversed Phase High Performance Liquid Chromatography (RP-HPLC)G V V Liyanaarachchi¹, K R R Mahanama², H P P S Somasiri¹ and P A N Punyasiri²¹Industrial Technology Institute, Sri Lanka²University of Colombo, Sri Lanka

The validation results of a method was carried out for the analysis of total amino acids (TAAs) in rice using high-performance liquid chromatography-diode array (HPLC-DAD) detection with o-Phthalaldehyde (OPA) and Fluorenylmethyloxycarbonyl chloride (FMOC-Cl) reagents is presented. The validated method has exhibited excellent selectivity allowing separation with resolution values (Rs) greater than two for seventeen amino acids in a single run, based on the analysis performed on the certified reference material (CRM): NIST 3233 on breakfast cereals and the method was found accurate for all the studied amino acids. The recoveries were found acceptable with values in the range 85% - 100% and with precision expressed as percentage relative standard deviation (% RSD) below 6% for all the studied amino acids. Limit of detection (LOD) and limit of quantification (LOQ) values were 0.024 – 0.069 g/100 g and 0.025 – 0.078 g/100 g respectively. This method also had a wide working range with satisfactory linearity obtained over six calibration levels having regression coefficients greater than 0.999 for each individual amino acid. In compliance with the international method validation guideline requirements, the validated method is accurate and reproducible allowing successful application of the method for determination of seventeen TAAs found in rice.

Recent Publications:

1. Liyanaarachchi G V V, Mahanama K R R, Somasiri H P P S and Punyasiri P A N (2018) Development and validation of a method for direct, underivatized analysis of free amino acids in rice using liquid chromatography–tandem mass spectrometry. *Journal of Chromatography A* 1568:131-139.
2. Liyanaarachchi G V V, Mahanama K R R, Somasiri H P P S and Punyasiri P A N (2018) Validation of a reversed-phase high-performance liquid chromatographic method for the determination of free amino acids in rice using L-Theanine as the internal standard. *Food Chemistry* 240:196–203.
3. Liyanaarachchi G V V, Mahanama K R R, Somasiri H P P S and Punyasiri P A N (2018) Validation of a tandem mass spectrometric method for direct analysis of free amino acids in rice, *Proceedings of the World Congress on Mass Spectrometry and Analytical Techniques held in 20th-21st August in Singapore*. *Journal of Analytical and Bioanalytical Techniques*. DOI: 10.4172/2155-9872-C2-030

Biography

G V V Liyanaarachchi is Pursuing for her PhD in Analytical Chemistry from the University of Colombo in Sri Lanka. She serves as an Assessor, Trainer and as a Technical Expert for several national committees and organizations. She has over 15 publications/ communications published in reputed journals and currently, serves as the Deputy Technical Manager at the Residue Analysis Laboratory of Industrial Technology Institute (ITI) of Sri Lanka.