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Development of a stable and rapid UPLC quantification of vitamin C in food and pharmaceutical supplements

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A green UHPLC-UV analytical method for determination of vitamin C (ascorbic acid) in food and pharmaceutical supplements is proposed. Vitamin C is an important water-soluble vitamin that requires quantification from different sources to monitor their nutritional value. The great challenge in this quantification is the stability of vitamin C under lab conditions (air, light and temperature) during the analysis time as well as the use of toxic organic solvents and their consumption in all of HPLC quantification. In the current work, for the first time, the stability of ascorbic acid was significantly improved and extended up to 11 days by forming a multicomponent complex. As well, by coupling with UPLC-UV, the analyte was separated and determined within 2 min without using any organic solvent. Only, isocratic elution in 100% (v/v) phosphate buffer, pH 7.4 was used. Due to the fact that the complexation extended the exposure of ascorbic acid to light and air (without molecular changes), UPLC method was validated for the quantitative determination of the vitamin in food and pharmaceutical samples. All the validation parameters were found to be within the acceptance ranges.

Biography

Hassan M Albishri has completed his PhD in Analytical Chemistry from Loughborough University, UK. Currently, he is working as Associate Professor in King Abdulaziz University, Saudi Arabia. He has published more than 60 papers in reputed international journals.

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