Determination of tocopherol in oil pharmaceuticals by using the spectrofluorimetry and method validation

Ana – Maria HOSSU*D, Mihaela – Flory MARIAb, Alexandru STOICAc, Mihaela ILIEd and Maria IORDANEc

a Department of Chemistry, “Valahia” University of Targoviste, 18-22 Unirii Blvd., Targoviste, Romania
b Authority of Public Health Dambovita, 17-19 Tudor Vladimirescu Street, Targoviste, Romania
c University “Valahia” Targoviste, Faculty of Environmental Engineering and Biotechnologies, 18-22 Unirii Blvd., Targoviste, Romania
d “Carol Davila” University of Medicine and Pharmacy, Faculty of Pharmacy, Toxicology Dept., 6 Traian Vuia Str., Bucharest, Romania

Abstract The paper presents research results regarding the establishing of the optimal conditions for the determination of fat-soluble vitamin E in multivitamin pharmaceutical products, by using the native fluorescence of the compound in n-hexane. Two spectrofluorimetric methods were tested, with solubilisation directly in n-hexane and after n-hexane extraction from non-polar matrices using ethanol as a carrier. The excitation and emission wavelengths were 290 nm and 306 nm, respectively, and a comparative study was made. The first method is linear in the range 1 – 100 µg/mL, having a detection limit of 1 µg/mL and a quantification limit of 2 µg/mL. The second method was developed for vitamin E concentrations in the range 2 - 60 µg/mL. The method is linear in the range 2 – 50 µg/mL, with a 0.68 µg/mL detection limit and a 2.27 µg/mL quantification limit.

Keywords: tocopherol, pharmaceutical, spectrofluorimetric assay, validation