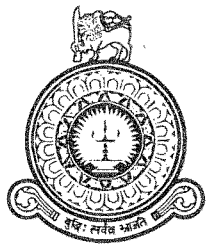

Improved HPLC analysis of vitamins in a multivitamin syrup

A thesis submitted to the Faculty of Science,
University of Colombo
for the Degree of Master of Applied Organic Chemistry

Thadchayini Krishanth
August 2010

Abstract:

The research project is 'Improved HPLC analysis of vitamins in a multivitamin syrup'. The research work was done at Glaxo Smith Kline Pharmaceuticals Ltd laboratory. The given multivitamin syrup is 'Becadex' syrup. It contains seven vitamins- five water soluble vitamins and two fat soluble vitamins. The whole process was divided into two procedures. One for water soluble vitamin analysis and the other one for fat soluble vitamin analysis. A suitable, easy, quick, cheap and environment friendly method was developed for the analysis of three water soluble vitamins. Those vitamins are vitamin B1, vitamin B3 and vitamin C. In this method I used SPHERISORP 5 ODS (250 mm× 4.6, 5 μm) column and the detector wavelength 249 nm. The mobile phase contained 6.4×10^{-2} M Sodium hexane sulfonate, 10 ml Acetic acid, 2 ml Triethyl amine and 90 ml Acetonitrile in 1 l deionized water. This method is a quick method and we can achieve separation within six minutes. This is an improved method for the analysis of three water soluble vitamins. Other water soluble vitamins B2 and B12 did not answer this method. The reason might be the amounts of these vitamins are small in 'Becadex' syrup or the analyzing conditions might not be suitable (column, mobile phase, wavelength etc) or other materials found in 'Becadex' syrup (preservatives, antioxidants, flavors, emulsifying agents, sweeteners etc) might interfere with the analysis of these two vitamins. In fat soluble vitamin analysis I did trials, but could not get a suitable method.