

Abstract

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Rigorous thesis title: HPLC determination of lutein, vitamin E, vitamin E acetate, beta-carotene in food supplements

The rigorous thesis deals with optimization of conditions for determination of lutein, beta-carotene and vitamin E, and vitamin E acetate in food supplements Ostrovidky, Ocutein forte, Walmark Lutein forte, Ocumax, Avilut, Ocuvite lutein forte, Lutein for eyes, Walmark betacarotene and Revital Super Betacarotene. High performance liquid chromatography (HPLC) was used for determination. Three chromatographic columns were tested, the best results were obtained using an Ascentis Express C-18 column 100 x 4.6 mm with a particle size 5 microns. Detection was performed by UV/Vis at a wavelength of 290 nm for vitamin E and E acetate, and 450 for lutein and beta-carotene. Separation was carried out by gradient elution with mobile phase of acetonitrile + methylenchlorid:hexane (1:1). Flow rate of the analysis was 1 ml/min and column temperature was set at 30 °C. Volume of sample injection was 5 µl. The analysis time lasted 9 minutes.

The results of the determination of the content of lutein, beta-carotene and vitamin E in food supplements were not unambiguous. It has not been possible to develop an optimal extraction method for reliable determination of the content of analyzed substances.

Keywords: Lutein, betacarotene, vitamin E, HPLC.