

ABSTRACT

Charles University

Faculty of Pharmacy in Hradec Králové

Department of Analytical Chemistry

Candidate: Mgr. Markéta Svobodová

Supervisor: Doc. RNDr. Dalibor Šatínský, Ph.D.

Title of the rigorous thesis: Determination of beta-carotene content in sour cherries by HPLC

In this rigorous thesis, we determined the presence of carotenoids (*trans* betacarotene, *cis* beta-carotene and lutein) in 18 cultivars of sour cherries. Cultivars: *Rannaja*, *Meteor*, *Krasnyj flag*, *Pandy 45*, *Muskatnaja pražskaja*, *Erdi jubileum*, *Griot Moskovskij*, *Valkova*, *Mesabich*, *Gorsetin*, *Inga mladi*, *Naumburger osheimer*, *Pandy 6039*, *Körös*, *Morellen fever*, *Wolyňská*, *Heimann's rubín*, and *Višňa IV/155*. The optimized method was taken from the diploma thesis of Štěpán Růžička - HPLC method development for carotenoids determination in fruits (2017). In the chromatographic method, we used a Supelco Analytical RP-Amide column (100 x 4.6 mm, 5 µm) and carotenoids were detected at a wavelength of 450 nm. Measurements were carried out in the isocratic elution mode with a mobile phase of acetonitrile: hexane: dichloromethane (97.5 : 1.25 : 1.25) at a flow rate of 1.8 ml / min at 30 ° C. The analyzed samples were extracted by ultrasound into chloroform. After centrifugation, they were filtered and injected to the HPLC column. The sample volume was 5 µl. Originally, we wanted to determine only *trans* betacarotene and lutein, but after continuous results, we encountered a high incidence of *cis* form of betacarotene in some cultivars. Therefore, we have also evaluated this form.