Solanesol, a naturally occurring polyprenol, is starting material for the synthesis of many highly valued biochemicals, including co-enzyme Q10 and vitamin K analogues [1]. Solanesol itself can be used as a cardiac stimulant, lipid antioxidant, antibiotic, additionally a clinical trial was also performed for the use of solanesol as anti-cancer drug [2]. At present, solanesol is mainly obtained by the extraction from tobacco leaves [3], which means an interesting alternative use of this crop. The reported content of solanesol in tobacco leaves range from 0.3 to 3% according to the type and variety, duration of growth and method of curing [4]. A substantial portion of solanesol in tobacco leaves is in form of esters with fatty acids [5].

In the present study, a RP-HPLC-UV technique has been developed for the characterization and quantification of solanesol in extracts of leaves from different tobacco types: oriental, semi-oriental and flue-cured, grown at Tobacco Institute-Prilep, Republic of Macedonia, under recommended agricultural practice in 2007. Ultrasound-assisted extraction with different solvents was optimized for the determination of free solanesol. Alkaline hydrolysis with ethanolic KOH was performed for release of esterified solanesol. The HPLC conditions were as followed: Hypersil C8 (4.6mmx150mm, 5μm) column, acetonitrile-isopropanol (80:20, v/v) as the mobile phase, isocratic, flow-rate 0.7mL/min, detection wavelength 205 nm, injection volume 5μL, room temperature. The main compound identified on the basis of the retention time of solanesol in standard and test solutions of all tobacco types and varieties in the described HPLC conditions was the all-trans-solanesol. Quantification was carried using external standard method.

Determination of solanesol in tobacco leaves is necessary for the selection of the best cultivar, in investigations of influences of agricultural practices on the yield, for evaluation of losses at curing and processing of the leaves (drying, milling, extraction, saponification of extracts etc).

References