

HPLC-UV Screening of Legal (Caffeine and Yohimbine) and Illegal (Ephedrine and Sibutramine) Substances from Weight Loss Dietary Supplements for Athletes

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Abstract : A HPLC -UV method for the identification of ephedrine (EPH), sibutramine (SB), yohimbine (Y) and caffeine (CF) was developed. Separation was performed on a Kromasil 100-RP8, 150 mm x 4.6 mm, 5 mm column equipped with a precolumn Kromasil RP 8. Mobile phase was a gradient of 80-35 % sodium dihydrogen phosphate pH=5 with NH₄OH and acetonitrile over 15 minutes time of analysis. Based on the responses of 113 athletes about dietary supplements (DS) consumed for "fat burning" and weight loss which have a legal status in Romania, 28 supplements have been selected and investigated for their content in CF, Y, legal substances, and SB, EPH (prohibited substances in DS). The method allows quantitative determination of the four substances in a short analysis time and with minimum cost. The presence of SB and EPH in the analyzed DS was not detected while the content in CF and Y considering the dosage recommended by the manufacturer does not affect the health of the consumers. DS labeling (plant extracts with CF and Y content) allows manufacturers to avoid declaring correct and exact amounts per pharmaceutical form (pure CF or equivalent and Y, respectively).

Keywords : dietary supplements, sibutramine, ephedrine, yohimbine, caffeine, HPLC

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