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BOOK OF ABSTRACTS

DETERMINATION OF ANDARINE USING COMPLEXATION WITH METAL CATION, BY UV SPECTROSCOPY

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Background: Andarine is a selective androgen receptor modulator (SARM) developed to replace anabolic-androgenic steroids in the treatment of osteoporosis and muscle wasting disease. Due to their performance enhancing properties, SARMS have been misused by athletes and bodybuilders. Therefore, the World Anti-Doping Agency added them to the Prohibited List in 2008. SARMS can be illegally purchased via the Internet and they are available as food supplements. Therefore, various methods have been developed for the detection of these substances including enzymatic hydrolysis and detection of their metabolites using mass spectrometry, HPLC and target analyte detection. **Objective:** This study aims to find more affordable and less time-consuming method for detecting andarine using UV spectroscopy. **Material and methods:** The amido- and hydroxyl group of andarine has been used to create complexes with five metal cations (Co^{2+} , Cu^{2+} , Fe^{3+} , Ni^{2+} , Zn^{2+}). The acetate salts of these metals have been dissolved in methanol in order to obtain highly concentrated (close to saturation) solutions. All complexes have been analyzed with UV spectroscopy by scanning within 190-450 nm possible changes in the adsorption of the andarine solution after the addition of the metal cations. **Results:** Analysis of UV spectra exhibit a 5 nm swift in the UV band in the case of andarine- Cu^{2+} , andarine- Zn^{2+} and a higher swift in the case of andarine- Fe^{3+} compared to pure andarine solution spectrum. No swift was noticed in the case of andarine- Co^{2+} and andarine Ni^{2+} as preliminary results. **Conclusions:** A possible complex between andarine and 3 of the analyzed cations (Zn^{2+} , Fe^{3+} and Cu^{2+}) was obtained due to the maxima swift noticed compared with pure andarine solution. The developed method is suitable and rapid, allowing qualitative determination of andarine in a matter of minutes from analyzed samples. Further analysis should be performed in order to develop and validate a quantitative determination of andarine from market products.

Keywords: Andarine, Selective androgen receptor modulators, Andarine-metal complex, UV-VIS spectroscopy



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