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A new simple method for determination of oxymetholone in sports supplements by high-performance liquid chromatography

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Background and Aims: The sports community should be aware of the danger of sport supplements containing prohibited anabolic steroids which have never been declared on the supplement label. The consumption of these supplements can lead to positive result in doping test. In this study attempt to present a selective, simple, inexpensive and rapid method for determination of oxymetholone as a prohibited anabolic steroid in solid form sport supplements.
Methods: The method involves analyte extraction with acetonitrile from powder form supplements and direct injection to the HPLC system. The effect of different mobile phases, temperature, acidic condition and some interferences on the separation process was studied.
Results: The optimum separation condition was achieved by using a suitable acetonitrile-water ratio as a mobile phase, a Hypersil ODS column and short analysis time. The calibration curve was linear in the range of 120-600 ng/ml, with typical r2= 0.9997. Detection and quantitation limits were 0.06 and 0.1 µg/ml respectively. No interferences of the structurally related compounds, creatine, water soluble and fat soluble vitamins, and amino acids which ususally exist in such supplements were observed at the retention time of the determined analyte.
Conclusions: Because of the ever-increasing use of sport supplements, the detection of anabolizing agents banned by international doping rules in supplements and the lack of a standard method, this study introduce a validated, simple and selective method for determination of oxymetholone to the regulatory authorities for quality control tests on imported supplements.

Keywords: Sport supplement; Oxymetholone; Doping; Anabolizing steroids