

PROJECT REVIEW

“Ecdysteroids as non-conventional anabolic agents: Pharmacodynamics, pharmacokinetics, and detection of ecdysterone”

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Increasing numbers of dietary supplements with ecdysteroids are marketed as “natural anabolic agents”. Their advertisements promise to increase strength and muscle mass during resistance training, to reduce fatigue and to ease recovery. Several studies have reported a wide range of pharmacological effects of ecdysteroids in mammals, most of them beneficial to the organism. The most active phytoecdysteroid, ecdysterone (a “Russian secret”), was already suspected to be used by Russian Olympic athletes since the 1980s. Extensive investigations on the possible growth-promoting effects of ecdysterone in various animal species (rats, mice, Japanese quail and cattle) were reported.

Recent studies suggest that the anabolic effect of ecdysterone is mediated by estrogen receptor (ER) binding. In comparison to the prohibited anabolic agents (e.g. metandienone and others) ecdysterone revealed to be even more effective in a recent study. However, scientific studies in humans are very rarely accessible.

Thus, our project aims at investigating the effects of ecdysterone containing products on human athletic performance. A 12-week intervention study in young man will be conducted including regular resistance training for all volunteers. Different doses of ecdysterone containing supplements will be administered during the study to evaluate the performance enhancing effect. Analysis of blood and urine samples for ecdysterone and potential biomarkers of performance enhancement will be conducted.

To exclude underlying effects by contamination of the supplement or adulteration of the results by administration of other anabolic agents regular screening for prohibited compounds is included in the project. Furthermore, the administered supplements will be tested for the absence of anabolic steroid contaminations.