

CHROMIUM SUPPLEMENTATION AS AN ALTERNATIVE THERAPY TO DIABETES MELLITUS - SYSTEMATIC REVIEW

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Introduction: Chromium is an essential mineral that interferes in the metabolism of carbohydrates, through an increase in insulin sensitivity. Chromium supplementation has been identified as an alternative for conventional therapy, to the control of diabetes mellitus.

Objectives: This systematic review aims to study the effect of chromium supplementation in fasting plasma glucose and in glycated hemoglobin; and the secondary objective is to verify the safety of taking this supplements.

Methods: Clinical trials were identified through PubMed and ScienceDirect, published from 2006. Studies were included if conducted in humans, older than 18 years of age, diagnosed with diabetes mellitus, with chromium monotherapy and reporting one of these variables: fasting plasma glucose or glycated hemoglobin. All the included studies were previously evaluated through CONSORT (Consolidated Standards of Reporting Trials) quality scale.

Results: A total of 8 clinical trials were included, with 317 participants who received 200 to 1,000 µg/day of chromium supplementation for eight to 24 weeks. Of the eight studies, five demonstrated the effect of chromium on fasting plasma glucose, showing a significant decrease (from 19.81 to 93.97 mg/dl). In glycated hemoglobin, there was a significant decrease (from 0.4% to 2.65% in 4 studies). Adverse effects were reported in three studies, such as constipation, flatulence, dry mouth, nausea, stomach problems, skin rash and decrease in appetite.

Conclusions: Even though the results are promising, there is no consensus, since three studies consider that chromium has weak antidiabetic power. It is premature to recommend chromium supplementation as a therapeutic alternative for the control of diabetes mellitus.

Keywords: Chromium. Diabetes mellitus. FPG.

PLANT SPECIES AS A MEDICINAL RESOURCE IN MANGUALDE (VISEU, PORTUGAL)

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Introduction: Ethnopharmacological studies are important for documenting ancestral knowledge and obtaining new phytotherapeutic agents.

Objectives: In order to preserve the traditional knowledge this study aims to identify and collect the medicinal plants used in Mangualde, located in Viseu (Portugal).

Methods: Data were collected using semi-structured interviews carried out with 15 informants, from January 2016 to February 2016. Plants were listed along with their popular name, traditional use, part used and method of preparation. Quantitative

ethnobotanical indices, namely, Use Value (UV), Fidelity Level (FL) and the Informant Consensus Factor (ICF) were also determined.

Results: A total of 33 species belonging to 31 genera and 20 different families were collected. The most represented family is Lamiaceae (25%). Leaves are the most frequently part of the plant used (59%) while infusion is the major form of preparation (80%). Plants cited were used for 26 various medicinal purposes. The largest number of taxa is used to treat digestive disorders (33.6%). According to UV the most important plant is *Melissa officinalis* (0.73). The ICF ranged from 0.50 to 1.00 and values obtained reflect the high agreement between the use of plants in the treatment of diseases of the musculoskeletal system and connective tissue, undefined pains or illnesses, and endocrine, nutritional and metabolic diseases. According to FL, 29 plant species resulted in fidelity levels of 100%.

Conclusions: Plants with high UV, ICF and FL values are good candidates to further phytochemical investigation. A comparison of the results with the literature showed that most of the traditional indications are supported by the available scientific literature data, with the exception of *Mentha aquatica*.

Keywords: Ethnopharmacology. Traditional medicine. Mangualde.

ANTICANCER ACTIVITY OF AVELOZ (EUPHORBIA TIRUCALLI L.)

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Introduction: *Euphorbia tirucalli* L., popularly known as aveloz, is widely used in popular medicine in the treatment of cancers, ulcers, inflammations and warts. The plant produces a toxic latex with corrosive effects on the skin and mucous membranes. Furthermore, high dilutions of this latex have been used in the treatment of tumors, although the mechanisms involved in this antitumoral activity are not yet known.

Objectives: This review aims to discuss the potential anticancer activity of *E. tirucalli* with the identification of the main compounds and mechanisms involved in its biological activity.

Methods: The search was carried out using PubMed and Elsevier updated to December 2015. The search terms were 'Phytotherapy', '*Euphorbia tirucalli*', 'Aveloz' and 'Cancer'. The references were chosen on the basis of their relevance to the text. In vitro and in vivo studies were included.

Results: Species of the genus *Euphorbia* present bioactive components such as essential oils (eugenol), aldehydes, latex, tiglane-type diterpenes (phorbol esters) and ingenane (ingenol esters), and tiglane-type diterpenoids (formaldehyde). *E. tirucalli* contains a large quantity of terpenes and sterols among its constituents. According to some studies euphol (tetracyclic triterpene alcohol isolated from the latex of *E. tirucalli*) suppresses breast cancer growth by modulating cyclin D1, p21, and p27 expression. It also induces apoptosis in gastric cancer cells and has been implicated in the altered expression of genes involved in the inflammatory and tumorigenic processes of larynx cancer.

Conclusions: The data indicates the involvement of *E. tirucalli* latex in some cancers; however further studies are needed in order to use the plant in the future as a innovative therapy for cancer.

Keywords: *Euphorbia tirucalli*. Cancer. Aveloz.