CP183

Phytochemical composition and bioactivity studies of *Genista tenera* extracts

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Genista tenera (Leguminosae) is a plant endemic to the island of Madeira, Portugal, which infusion is used by the local population for the control of diabetes. A preliminary phytochemical screening of the infusion showed the presence of alkaloids and flavonoids as major constituents. The flavonoid extracts in diethyl ether, ethyl acetate, and *n*-butanol were fractionated by preparative column chromatography and pure compounds identified by spectroscopic techniques like ESI-MS/MS, NMR and UV [1-3]. The extracts were evaluated concerning their antioxidant activity, and the inhibition of α-glucosidase and glucose-6-phosphatase, two enzymes involved in the carbohydrate metabolism. In addition, direct cytotoxicity and genotoxicity of the three extracts were determined by mitotic index evaluation and chromosomal aberration assay, in peripheral human lymphocytes from healthy donors. The best radical scavenging activity was observed for the ethyl acetate and the *n*-butanol extracts. Also, they proved to be more potent than acarbose, a standard drug that inhibits α-glucosidase, and the three extracts inhibited significantly glucose-6-phosphatase, an enzyme acting on gluconeogenesis, a target of therapy for type 2 diabetes. *In vitro* toxicity studies showed no evidence for acute cytotoxicity or genotoxicity of these extracts, reinforcing their potential for nutraceutical applications.

Acknowledgements:
The authors thank Fundação para a Ciência e a Tecnologia for financial support (Project PTDC/QUI/67165/2006).

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