Comparative study of antioxidant potential and cytotoxic effects of mehanolic extracts from Lycium barbarum and Lycium ruthenicum berries

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• Congress Abstract
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Lycium barbarum (Lb) and Lycium ruthenicum (Lr) are two species of goji and their fruits are commonly named as red goji and black goji berries, respectively. These berries have been widely used as Chinese herbal medicines, foods, and teas. The aim of this study is to characterize methanolic fruit extracts of Lb and Lr and their in vitro antioxidant propeties, using several in vitro tests (DPPH scavenging, iron chelation, inhibition of nitric oxide and superoxide production). Additionally, we further assessed their cytotoxic effects using HepG2 cells (hepatocytes). Results showed that Lb and Lr phytochemical HPLC profiles are very different. In terms of antioxidant activites, Lr revealed the best potential, compared with Lb. Namely, in antiradicalar assays, DPPH and superoxide assay showed that extract from Lr have the highest radical scavenger capacity, with EC50 of 226.6 and 859.8 μg/ml, respectively. Results for iron chelating activity revealed as well that Lr have the best capacity to chelate iron with an EC50 of 394.6 μg/ml, almost two times more than Lb. Lr also exhibited the greatest ability to inhibit nitric oxide production (EC50 58.82 μg/ml). We can conclude that extracts from these two species could act as a good antioxidant resources, namely Lr, and might protect cells from damage caused by oxidative stress. So, first of all, we tested the cytotoxic effects of extracts on HepG2 cells. Results did not show any cytotoxic effects on HepG2 cells for the different concentrations tested (MTS test) up to 1 mg/ml. We can conclude that extracts from these two species are good antioxidants without significant cell toxicity.

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