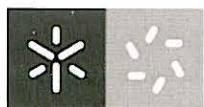
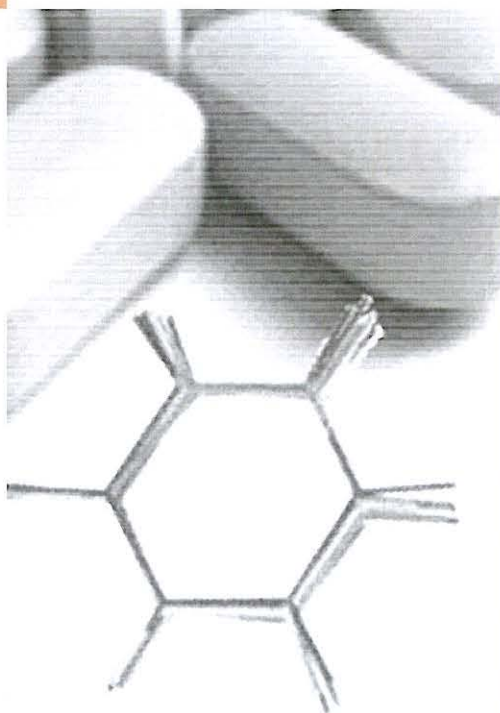


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Bioactivity of different formulations of artichoke and milk thistle, commonly used for hepatoprotective effects

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Cynara scolymus L. (artichoke) is today widely cultivated all over the world for its large fleshy immature inflorescences and known since ancient times as a tasty plant that can be used in soups, stews and salads, being perceived as a nutritious and healthy vegetable due to its antioxidant and hepatoprotective effects [1]. *Silybum marianum* (L.) Gaertn (milk thistle) is a herbaceous plant with reported effects against hepatotoxicity and acute and chronic liver diseases, due to its main pharmacological active ingredient silymarin (standard mixture of flavonoligans) that also has antioxidant properties [2,3]. Thus, artichoke and milk thistle are two plants widely used regarding hepatoprotective effects but to the best of our knowledge no anti-hepatocellular carcinoma activity has been studied, particularly in the most consumed forms: infusions and dietary supplements. In the present work, antioxidant properties (reducing power, radical scavenging activity and lipid peroxidation inhibition), anti-hepatocellular carcinoma activity (HepG2 tumour cell lines) and hepatotoxicity (non-tumour liver primary culture PLP2) of infusions and dietary supplements of the mentioned plants were evaluated and compared. Both plants revealed antioxidant properties with EC₅₀ values lower than the daily recommended dose. The infusions of milk thistle and artichoke revealed, in general, similar contents in phenolics and antioxidant activity. Artichoke infusion also presented anti-hepatocellular carcinoma activity (GI₅₀ = 52 µg/mL) but with some toxicity for normal liver primary cells at concentrations higher than GI₅₀ = 72 µg/mL. The studied bioactive properties (antioxidant and antitumour) were positively correlated with phenolics and flavonoids content. Regarding dietary supplements, the bioactive compounds amount and antioxidant activity of milk thistle was higher than artichoke's. These samples neither revealed anti-hepatocellular carcinoma activity, nor toxicity for normal liver cells.

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