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Abstract

Cynaropicrin: A Promising Natural Agent with Antitumor and Antiviral Activities †

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Abstract: Most natural agents do not induce a high level of toxicity and target multiple signaling pathways involved in cell growth, invasion, apoptosis, angiogenesis and metastasis. Human infection with HCV is currently recognized as the leading cause of hepatocellular carcinoma (HCC) which demands liver transplantation which was estimated to result in ~10,000 deaths in the US only in the year 2011. Cynaropicrin is a potential agent for treatment and prevention of HCC by indirect way through inhibition of HCV and in a direct way evidenced by the many antitumor activities in literature. Additionally, cynaropicrin has anti-inflammatory, TNF-α inhibitory, and antioxidant activities and hence it can also prevent the progression of HCC. The compounds cynaropicrin and grosheimol, obtained from the wild Egyptian artichoke (*Cynara cardunculus* L. var. sylvestris), showed EC_{50} at 1.03 μM, and 1.27 μM, by using a luciferase-carrying reporter virus. Time-of-addition experiments revealed that cynaropicrin and grosheimol inhibited HCV virus at a time-point during entry. Finally, the results showed that these compounds inhibited HCV particles from genotypes 1a, 1b, 2b, 3a, 4a, 5a, 6a and 7a indicating that these compounds inhibit HCV cell entry independently of viral genotype or subtype. In conclusion, cynaropicrin is a very promising drug as antitumor agent.

Keywords: cynaropicrin; grosheimol; HCC; HCV; the wild Egyptian artichoke

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