

Abstract

Novel Anticancer Capacities of Saffron [†]

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Abstract: Thanks to poor diagnosis and very limited treatment options, hepatocellular carcinoma (HCC) continues to lead the list of cancer-leading causes of death worldwide. Therefore, alternative therapy is crucial to control HCC. Our group has investigated the anticancer effects of the saffron's main active ingredient "safranal" against HCC using *in vitro*, *in silico*, and network analyses. In addition to the unique and differential cell cycle arrest, safranal showed pro-apoptotic effect through activation of both intrinsic and extrinsic initiator caspases implicating ER stress-mediated apoptosis. Gene set enrichment analysis provided consistent findings where unfolded protein response (UPR) was among the top terms in up-regulated genes in response to safranal treatment. Thus, proteins involved in ER stress and autophagy were regulated through safranal treatment to induce UPR and autophagy-mediated cell death in HepG2 cells.

Keywords: saffron; ER-stress; unfolded protein response

Conflicts of Interest: The authors declare no conflict of interest.



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