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# Evidence to Support the Anti-Cancer Effect of Olive Leaf Extract and Future Directions

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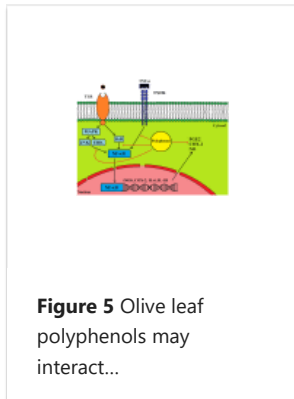
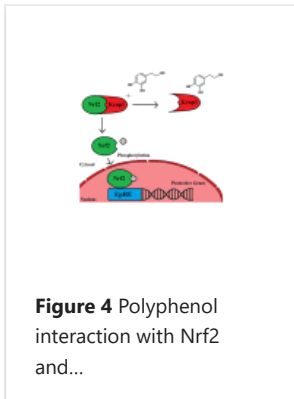
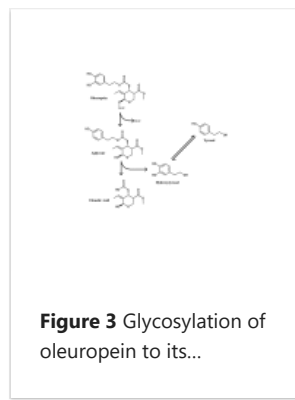
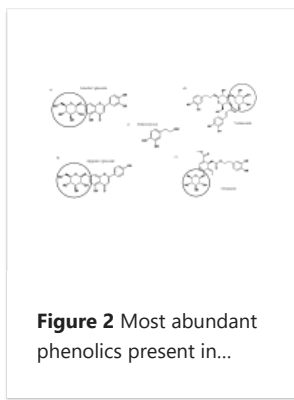
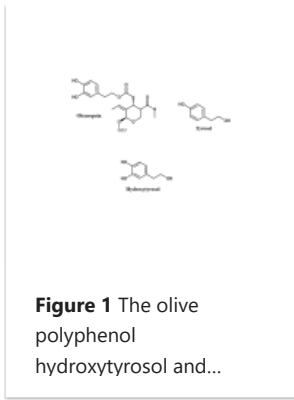
## Abstract

The traditional Mediterranean diet (MD) is associated with long life and lower prevalence of cardiovascular disease and cancers. The main components of this diet include high intake of fruit, vegetables, red wine, extra virgin olive oil (EVOO) and fish, low intake of dairy and red meat. Olive oil has gained support as a key effector of health benefits and there is evidence that this relates to the polyphenol content. Olive leaf extract (OLE) contains a higher quantity and variety of polyphenols than those found in EVOO. There are also important structural differences between polyphenols from olive leaf and those from olive fruit that may improve the capacity of OLE to enhance health outcomes. Olive polyphenols have been claimed to play an important protective role in cancer and other inflammation-related diseases. Both inflammatory and cancer cell models have shown that olive leaf polyphenols are anti-inflammatory and protect against DNA damage initiated by free radicals. The various bioactive properties of olive leaf polyphenols are a plausible explanation for the inhibition of progression and development of cancers. The pathways and signaling cascades manipulated include the NF- $\kappa$ B inflammatory response and the oxidative stress response, but the effects of these bioactive components may also result from their action as a phytoestrogen. Due to the similar structure of the olive polyphenols to oestrogens, these have been hypothesized to interact with oestrogen receptors, thereby reducing the prevalence and progression of hormone related cancers. Evidence for the protective effect of olive polyphenols for cancer in humans remains anecdotal and clinical trials are required to substantiate these claims idea. This review aims to amalgamate the current literature regarding bioavailability and mechanisms involved in the potential anti-cancer action of olive leaf polyphenols.

**Keywords:** Cyclooxygenase-2; Mediterranean diet; inflammation; oleuropein; olive leaf; oxidative stress.

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