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Effect of combination of *Citrus bergamia* (*Rutacae*) and *Cynara cardunculus* (*Compositae*) derivatives in liver dysfunction

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Non-alcoholic fatty liver disease (NAFLD) is a metabolic disorder which is considered the hepatic manifestation of the metabolic syndrome, being often related with diabetes and obesity. The development and the progression of NAFLD represents a continuum of events characterised by excessive hepatic fat accumulation (steatosis) in the absence of significant alcohol consumption, which can progress to nonalcoholic steatohepatitis (NASH); fibrosis, cirrhosis, and in some severe cases hepatocellular carcinoma (HCC). Although the evolution of NAFLD have been widely described, to date the molecular mechanisms triggered by an impaired lipid metabolism have not well understood and, as a consequence no approved therapy for NASH currently exists. Bergamot (*Citrus bergamia* Risso & Poiteau) has a particular composition of flavonoids and glycosides in its juice and albedo and it has been shown to have anti-oxidative and anti-inflammatory properties in patients suffering from metabolic syndrome. Moreover, Cynaropicrin, a sesquiterpene lactone of a guaianolide type isolated from artichoke (*Cynara cardunculus* L.) is a potent antioxidant and hence it can play a supportive role for liver in different hepatic diseases. Here, to investigate the protective effect of an innovative and unique combination of Bergamot polyphenol fraction (BPF) and *Cynara cardunculus* extract, known as Bergacyn, against pathological features of NASH, we used the better defined animal model of diet-induced non-alcoholic fatty liver disease (DIAMOND) that mimics the key physiological, cell-signalling, transcriptomic, metabolic and histologic modifications observed in humans suffering from progressive NASH.

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