Title: Compositional analysis, cytotoxic and cytoprotective activity of red raspberry leaves extract

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Abstract:
The polyphenolic profile and antioxidant properties of red raspberry (< i> Rubus idaeu< /i> s L.) leaf extract were determined and examined for potential biological activity. The content of phenolic compounds and the antioxidant capacity of red raspberry leaf extract were determined using UV/Vis spectrophotometric methods and high-performance liquid chromatography. Red raspberry leaf extract exhibited a significant content of total phenols (40.64 mg GAE/g dw), with quercetin derivatives constituting the most abundant polyphenolic compounds, followed by ellagic acid derivatives, while caffeic and chlorogenic acids were also represented in a high content. Cytotoxic, antioxidative/prooxidative effect and total glutathione (GSH) concentration of red raspberry leaf extract were determined on human laryngeal carcinoma cell line (Hep-2) and adenocarcinoma of the colon (SW 480). SW 480 cells are more susceptible to raspberry leaf extract in comparison to Hep-2 cells. Antioxidative nature of raspberry leaf extract was detected in the Hep-2 cells treated with hydrogen peroxide, as opposed to SW 480 cells where raspberry leaf extract induced reactive oxygen species formation. Raspberry leaf extracts increased GSH level in Hep-2 cells. GSH level increased in the cells that were previously treated with hydrogen peroxide and this effect was reinforced after 24 hours of recovery. In SW 480 cells, lower concentrations of extract increased, while higher concentrations decreased total GSH level with no influence on cells treated with hydrogen peroxide.