

عنوان مقاله:

Evaluation of Cytotoxic and Antioxidant Activities of Purified Vegetal Extracts and Its Main Pure Compounds

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خلاصه مقاله:

Vegetal aqueous extracts are an important source of phytochemicals with biological activities. Concretely, olive leaf extract (OLE) and green tea extract (GTE) contain a high amount of phenolic compounds that present antioxidant, antibacterial and cytotoxic properties, among others. As described in literature, plant extracts containing photosynthetic pigments, such as chlorophylls, may cause an undesirable pro-oxidant effect when applied in food matrices. Such pro-oxidant effect, however, must be analysed according to the final applicability of the extract. The aim of this work was to purify natural extracts' phenolic content by elimination of chlorophyll compounds and evaluate the cytotoxic and antioxidant activity of the extracts, the importance of the individual major phenolic compounds and the influence of chlorophylls. The extracts were characterized by HPLC which showed that they contained different phenolic compounds in high concentration, particularly, OLE contained mainly hydroxytyrosol, oleuropein and tyrosol, while GTE contained caffeine, gallic acid, epigallocatechin, epigallocatechin gallate, gallic acid gallate as main phenolics. Afterwards, extracts were subjected to purification process by column chromatography and the amount of phenolic compounds decreased because the column yield was 33-58%. The antioxidant capacity of the extracts was evaluated by ABTS method. Pro-oxidant or anti-oxidant activity of individual phenolic compounds were concentration-dependent because when the extracts were doped with individual compounds, this fact generated a decrease in antioxidant activity compared to fresh extracts. The individual phenolic compounds did not show synergic effect when combined, and the elimination of chlorophyll compounds did not generate a change in the antioxidant activity of extracts, suggesting that these vegetal pigments are not relevant to such capacity. On the other hand, the cytotoxic activity of the extracts was tested against HL-60 leukemic cells using the MTS tetrazolium salt reduction assay. The results showed that both OLE and GTE had a high antiproliferative activity, 66.3% and 70.1%, respectively and, in

contrast to their antioxidant activity, the elimination of chlorophyll compounds generated an important decrease of cytotoxic effect in both cases. Only hydroxityrosol and caffeine phenolic compounds individually showed important antiproliferative activity, 44.5% and 25.2%, respectively. But when the fresh extracts were doped with some individual ... compounds, the cytotoxic capacity was increased. This can be explained

کلمات کلیدی:

.Green Tea;Olive Leaf;Pro-oxidant;Chlorophyll;Bioactivity

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