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Study on the phototoxicity and antitumor activity of plant extracts from *Tanacetum vulgare*, Epilobium parviflorum and Geranium sanguineum

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Abstract

Our country is rich in medicinal plants with a thousand-year tradition of use for therapeutic and cosmetic purposes. World Health Organization estimates that around 70% of population is using traditional (folk) medicine to cure various ailments. In many cases, herbal preparations prove to be useful, but some of them can also exert toxic effects. Therefore, herbal extracts should be tested both as curatives and for safety application.

The aim of the present work was to investigate extracts from *Tanacetum vulgare (TVA), Epilobium parviflorum (EPE)* and *Geranium sanguineum (GSA)*, obtained by different organic solvents, for their phototoxicity and anticancer activity. The standard BALB/c 3T3 NRU phototoxicity/cytotoxicity assay was used to evaluate the possible phototoxic properties of the extracts. The antitumor activity of the extracts was studied in vitro on a panel of human tumor cell lines in comparison to the non-tumorigenic MCF-10A cells. The selectivity indices and the photo-irritancy factors were determined. The results were visualized by fluorescent microscopy after staining with acridine orange/propidium iodide and DAPI.

The results show that the studied extracts are not phototoxic. Additionally, the selectivity indices demonstrated a promising antitumor activity of the extracts in certain cell lines.