

Studies on the chemopreventive effect of *Styrax camporum* species

Denise Crispim Tavares*, Pollyanna Francielli de Oliveira, Jaqueline Lopes Damasceno, Heloiza Diniz Nicolella and Patricia Mendonça Pauletti
University of Franca, Brazil

The *Styrax camporum* Pohl, commonly found in Brazil, is used for therapeutic purposes by folk medicine to treat ulcers, respiratory diseases and others. Phytochemical studies have demonstrated the presence of the benzofuran neolignans, egonol (EG) and homoeconol (HE), in all *Styrax* species. These lignans are therefore considered phytochemical markers for the quality control of *Styrax* extracts. These compounds possess some biological activities of clinical interest, such as antibacterial, antifungal and cytotoxic to tumor cells. Previous studies conducted by our group with *Styrax camporum* extract demonstrated its modulating effect on DNA damage induced by different mutagens. Thus, the aim of the study was to investigate whether the EG and HE are responsible by the modulating activity observed for the *S. camporum* extract. The study was carried out in Chinese hamster lung fibroblasts (V79 cells) using the micronucleus assay. The cultures were treated with EG (0.26 µg/mL), HE (0.017 µg/mL) alone or combined. In addition, the same concentrations were simultaneously treated with methyl methanesulfonate (MMS, 44 µg/mL), hydrogen peroxide (H₂O₂, 3.5 µg/mL), camptothecin (CPT 43 µg/mL) and etoposide (VP16 1 µg/mL). We also included a negative (without treatment), a solvent (dimethylsulfoxide; DMSO 0.05%) and positive control groups. The cultures treated with EG plus HE showed genotoxicity. The cultures treated with the EG and HE alone or combined with MMS or CPT no shown a significant effects. Regarding the combination with H₂O₂, the cultures treated with EG alone or combined with HE a significant increase on the micronuclei frequencies was observed when compared to cultures treated with H₂O₂ alone. Regarding the combination with VP16, the EG and HE alone or combined led to a reduction in the frequency of micronuclei induced by VP16. This study allowed us to better understand the mechanism of action of the *S. camporum* and chemical markers and suggest modulation depends on the type of mutagen used.

Financial Support: São Paulo Research Foundation (FAPESP, Brazil, grant # 2013/13903-9).

Biography

Denise Crispim Tavares is a Professor and researcher at the University of Franca, Franca, Brazil. She has experience in Genetics, with emphasis on Mutagenesis, acting on the following topics: assessment of genotoxic activity, antigenotoxic, antiproliferative and anticarcinogenic herbal extracts and isolated substances and synthetic.