

5th World Congress on **Biotechnology**

June 25-27, 2014 Valencia Conference Centre, Valencia, Spain

***In vitro* antitumor activity of terpenes found in essential oils: Structure-activity relationship**

Damião P de Sousa, Luciana N Andrade, Tamires C Lima and Adriana A Carvalho
Federal University of Paraíba, Brazil

The chemoprevention is a strategy to block or delay the process of carcinogenesis and reduces the incidence, morbidity, and mortality of cancer. The essential oils are natural products with high therapeutic potential against various types of cancer. This comparative study finding of bioactive terpenes in tumor cells is reported. The cytotoxicity of the terpenes was tested against OVACAR-8 (ovarian carcinoma), HCT-116 (colon carcinoma) and SF-295 (glioblastoma) human tumor cell lines (American National Cancer Institute). The terpenes were dissolved in DMSO (1%) at a final concentration of 25 µg/mL and added to each well and incubated for 72 h. Tumor cell growth was quantified by the ability of living cells to reduce the yellow dye MTT (colorimetric assay) to a blue formazan product. The cytotoxic effect of terpenes was quantified as the percentage of control absorbance of reduced dye at 595 nm. Our experiments showed that among the 15 terpenes tested, the perillaldehyde epoxide, perillyl aldehyde, (-)-hydroxycarvone and (+)-limonene epoxide exhibited high cytotoxic activity. These compounds demonstrated significant inhibition of the proliferation of tumor cells in the three cell lines analyzed. The degree of inhibition was 98.64%, 96.32% and 102.06% to perillaldehyde epoxide; 83.03%, 70.24% and 59.28% to perillyl aldehyde; 75.20%, 93.10% and 58.48% to (-)-hydroxycarvone; 73.13%, 94.01% and 61.59% to (+)-limonene epoxide in tumor cell lines HCT-116, OVACAR-8 and SF-295, respectively. In the present study it was demonstrated that oxidation on chemical structure of p-menthaneterpenes influences the cytotoxic activity.

Biography

Damião P de Sousa obtained his Master's degree in Natural Products in 1998 from the Federal University of Paraíba. He did his PhD studies in Sciences in 2004 from the Federal University of São Carlos and is currently a professor at the Department of Pharmaceutical Sciences from Federal University of Paraíba, Brazil. His current research areas are Chemistry of Natural Products, Medicinal Chemistry, and Synthesis of Bioactive Substances from Plants Secondary Metabolites. He is a member of the editorial board of 8 international journals and published more than 90 papers in reputed journals.

sousadam@yahoo.com