

Solvent Effects on Anticancer Activities of Medicinal Plants

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Abstract : Natural products are well recognized as sources of drugs in several human ailments. To investigate the impact of variable extraction techniques on the cytotoxic effects of medicinal plant extracts, 5 well-known medicinal plants from Palestine were extracted with 90% ethanol, 80% methanol, acetone, coconut water, apple vinegar, grape vinegar or 5% acetic acid. The resulting extracts were screened for cytotoxic activities against three different cancer cell lines (B16F10, MCF-7, and HeLa) using a standard resazurin-based cytotoxicity assay and Nile Blue A as the positive control. Highly variable toxicities and tissue sensitivity were observed, depending upon the solvent used for extraction. Acetone consistently gave lower extraction yields but higher cytotoxicity, whereas other solvent systems gave much higher extraction yields with lower cytotoxicity. Interestingly, coconut water was found to offer a potential alternative to classical organic solvents; it gave consistently highest extraction yields, and in the case of *S. officinalis* L., highly toxic extracts towards MCF-7 cells derived from human breast cancer. These results demonstrate how the cytotoxicity of plant extracts can be inversely proportional to the yield, and that solvent selection plays an important role in both factors.

Keywords : plant extract, natural products, anti cancer drug, cytotoxicity

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