Abstract

Myrtus Communis L., (also known as myrtle) belongs to the family Myrtaceae, is an evergreen shrub that grows spontaneously in the Mediterranean region as well as in Southern Europe and Middle East. The leaves and berries of myrtle have long been used for its medical and culinary properties. Ancient Egyptian medical texts mentioned that myrtle was used as a remedy for urinary tract disorders as well as for pain, heartburn, swelling, stiffness of the limbs and cough. Leaves and berries also have been traditionally used as antiseptics and disinfectants. Several previous publications have focused on the cytotoxic activity of leaves of myrtle on different cancer cell lines while berries and flowers have not been evaluated yet for their cytotoxic effect. This study aims to discuss the potential cytotoxicity of myrtle berries and flowers total extracts and fraction(s) against four different cancer cell lines including, MCF-7, T-47D, MDA-MB-231(breast cancer) and Caco-2 (colorectal cancer) cells.

Methodology

Different extraction methods; including hot extraction, cold maceration and partitioning by solvents with increasing polarities; were used to obtain different extracts and fractions (hexane, chloroform and ethanol extracts as well as ethyl acetate, butanol and water fractions). In addition, Analytical and preparative Thin layer chromatography techniques were used to separate fractions (bands) to assess their potential cytotoxic effect. The potential cytotoxicity of these samples (extracts and fractions) was determined by means of measuring cell viability using SRB assay.

Results and Discussion

Among different extracts and fractions, hexane extract (maceration) from extraction method No.1 of berries gave a percentage cell proliferation 60.58% against MCF-7 cells while methanol extract and n-butanol fraction from extraction method No.2 of berries produced a percentage cell proliferation 66.52% and 65.58%, respectively against T-47D. Flowers ethanol extract gave percentage cell proliferation ranging from 78.9% (for Caco-2) to 84.5% (for T-47D). Results of initial screening have demonstrated that both berries and flowers extracts and fractions were lacking cytotoxic properties against previously mentioned cell lines. This might be ascribed to the absence of some chemical compounds (myrtucommulone & semimyrtucommulone) in berries and flowers. On the other hand, these compounds in leaves of M. communis have showed a good cytotoxic activity.

Detailed view of the monograph

Title: Study of Potential Cytotoxicity of Myrtus communis L. Berries and Flowers extract Grown in Jordan against Different Cancer Cell Lines

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