



Research Article

Determination of 1, 2-Benzenedicarboxylic acid, bis (2-ethylhexyl) ester from the twigs of *Thevetia peruviana* as a Colwell Biomarker

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Abstract

Thevetia peruviana is a tropical plant of the Apocynaceae family and is primarily cultivated in India. A wide range of secondary metabolites, such as enolides, flavanones, flavones, thevetosides, theveside, and glycosides, have been isolated from the roots, kernel, seeds, flowers, and leaves of the plant and are of diverse medicinal value. In this study, 1, 2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester was isolated from the *T. peruviana* twigs extract using preparative TLC technique in a 5% methanol in ethyl acetate solvent system. The structure of this compound was subsequently confirmed using NMR techniques such as LC-MS, FTIR, and HRMS. Literature survey in PubMed, Scifinder, and Dictionary Natural Products (DNP) revealed that this compound was present in 13 other medicinal plants, including Indian Ginseng (leaves of *Panax Pseudoginseng* subsp *himalaicus*). Thereafter, bioactivity experiments revealed positive anti-cancer activity of this compound on PC3, MCF, HCT-116, A549, and MIAPACA cell lines, and this compound was proved to be a strong immunomodulatory B-cell stimulant. We propose that this compound is a potential biomarker.

Identification of new biomarkers and their commercialization is crucial for the treatment of diseases. Currently, no or very few biomarkers (standard or otherwise) are available that are prohibitively invasive or highly expensive. Therefore, it is critical to develop and quantify high-impact biomarkers to expedite therapeutic development and patient care.

Key words: *Thevetia peruviana* twigs; Colwell; plant biomarker; 1, 2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester; medicinal plants; *Panax Pseudoginseng*.

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