

Cytotoxicity and fragmentation pattern of *Datura metel* L. leaves using ultra-performance liquid chromatography-mass spectroscopy

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Published: Jan 27, 2023

DOI: 10.7324/JAPS.2023.87779

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Abstract

This scientific investigation was conducted to evaluate the cytotoxicity and ascertain the pattern of fragmentation of *Datura metel* L. leaves using ultra-performance liquid chromatography-mass spectrometry. Phytochemical screening, isolation, and cytotoxic testing with the brine shrimp lethality test have been carried out on *D. metel* L. leaves extract. Preparative thin-layer chromatography with chloroform:n-hexane (1:1 v/v) eluent was used to carry out the compound isolation process. The octadecyl silica column was the stationary phase employed. The mobile phase that was used was an isocratic elution system with a positive ion mode and acetonitrile:water (15:85 v/v) ratio. The retention time (t_R) on the chromatogram was 3.20 minutes, and there was just one visible distinct peak. The results showed that the *Datura* leaves contain flavonoids, alkaloids, steroids, and saponins. The cytotoxic activity test showed a high cytotoxic potential of *Datura* leaf extract with an LC₅₀ value of 46.1636 µg/ml. The result also showed that the isolate was a steroid that belongs to the Withanolide group, namely, Baimantuoluoline D. The isolate had a molecular weight of [M+]⁺ 504.0591 m/z with daughter fragments forming 477.2583 m/z [M+ - CH₃-OH] and 301.1780 [M+ - C₉H₁₁O₄]. There are more than 600 activities of the Withanolide group that have been documented. However, the activity showed that Withanolide isolated from it has anti-microbial, anti-

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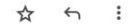
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