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Commentary

Antimicrobial Properties Using HPTLC and NMR Spectroscopy

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DESCRIPTION

In some regions of the world, High-performance Thin-Layer Chromatography (HPTLC) is still making headway in pharmaceutical analysis. The approach delivers for specific applications an accuracy and trueness equivalent to high-performance liquid chromatography because to improvements in the stationary phases and the introduction of technology as detection equipment. For technique development, validation, and quantitative assays, the created and confirmed HPTLC methods were compared to the conventional methods of executing them. The main flavonoids in the plant leaves methanol extracts were to be identified, isolated, and quantified using spectrophotometry, chromatography, and NMR, respectively. Six phenolic compound-related peaks were found using HPTLC-MS.

The Gram-positive plant pathogenic bacteria *Rhodococcus fascians* is used in this study to introduce a direct bioautography approach employing High-Performance Thin-Layer Chromatography (HPTLC). *Bacillus subtilis*, *B. subtilis* subsp. *spizizenii*, *R. fascians*, and *Aliivibrio fischeri* were screened and isolated using a non-targeted High-Performance Thin-Layer Chromatography-Effect-Directed Analysis (HPTLC-EDA), a targeted HPTLC-Mass Spectroscopy (MS), and bioassay-guided column chromatographic , fractionation and Four bioactive cis-clerodane diterpenes, solidagoic acid H, solidagoic acid E, solidagoic acid I and solidagoic acid F, were found for the first time in the n-hexane extract of gigantic goldenrod (*Solidago gigantea Ait.*) leaf due to recently developed separation techniques.

Nuclear Magnetic Resonance (NMR) spectroscopy in 1D and 2D was used to identify these substances. To accomplish the separation of the closely connected isomer pairs, the original HPTLC technique. In microdilution experiments, compounds 1 and 3 showed modest antimicrobial property against by the Gram-positive *B. subtilis subsp. spizizenii* and *R. fascians* bacterial strains, with IC50 values in the range of 32.3-64.4 g/mL. The separated compounds' mass spectrometric fragmentation was deciphered, and their previously reported NMR assignments lacking specific resonances were finished. Using a Gram-positive *Bacillus subtilis* bacterium, High-Performance Thin-Layer Chromatography (HPTLC)-direct bioautography was used to screen a *Prunus armeniaca* leaf extract for antibacterial chemicals. There were six chromatographic zones with distinctive bioactivity. In five of them, triterpenoids and the fatty acids linolenic and palmitic acid were also detected following derivatization with the vanillin-sulfuric acid reagent and could be identified using HPTLC-ESI-Mass Spectrometry (MS). An HPTLC approach using pre-chromatographic functionalization with iodine was devised to segregated the by the closely related triterpenoids in order to validate the identification of triterpenoids. After development, the chromatogram might be made appropriate for the *B. subtilis* test by removing the iodine (as confirmed by HPTLC-MS).

For the first time, the antibacterial properties of *P. armeniaca* leaves were identified to include ursolic acid, oleanolic acid, betulinic acid, corosolic acid, and maslinic acid. Additionally, 2D-HPTLC in conjunction with subsequent *in situ* iodine derivatization was used to demonstrate their existence.A ubiquitous herb in Asian nations is holy basil (*Ocimum sanctum Linn*), also known as "*kemangi*" in Indonesia. With antipyretic, anti-inflammatory, anti-cancer, and neuroprotective effects, it is also therapeutic. This dataset post offers a thorough screening of the *Ocimum sanctum* ethanolic extract's phytochemical component as well as information on the bioactive compound profile of EEOS. Combining spectrophotometer, thin layer chromatography, Fourier Transform Infrared (FTIR), and 1H-nuclear magnetic resonance allowed for both qualitative and quantitative analyses (1H-NMR).

CONCLUSION

The antibacterial properties of *P. armeniaca* leaves were identified to include ursolic acid, oleanolic acid, betulinic acid, corosolic acid, and maslinic acid. Additionally, 2D-HPTLC in conjunction with subsequent in situ iodine derivatization was used to demonstrate their existence. According to the findings, the ethanolic extract of *Ocimum sanctum* includes phytochemicals such as flavonoids, phenols, tannins, saponins, alkaloids, steroids, and terpenoids. A secondary metabolite was also discovered and was categorized into the following metabolite groups: alcohol, amine, carboxylic acid, alkane, alkene, aldehyde, phenol, ether, sulphur, halogen, benzene, nitrogen, sterol, amino acid, carbohydrate, and nitrogen.

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