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Program and Abstract Book

A red-tinted photograph of an industrial facility, likely a refinery or chemical plant. The image shows a complex network of pipes, metal scaffolding, and structural beams. The pipes are arranged in a grid-like pattern, with some curving upwards and others running horizontally. The overall scene is industrial and technical, with a strong sense of structure and complexity. The red tint gives it a modern, high-tech feel.

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sciforum-089959: Comparative Phytochemical Profiling of Flowers and Pods in *Acacia mearnsii*

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Species belonging to the *Acacia* genus are recognized as invasive plants, displaying high levels of aggressiveness across diverse territories, thereby posing a notable threat to biodiversity and ecological equilibrium. Extensive research has been dedicated to understanding the chemical composition and biological activities of different components of *Acacia* trees. This study aims to clarify the chemical constituents of *Acacia mearnsii* extracts, focusing on their potential industrial applications. Extracts from both flowers and pods were subjected to rigorous analysis and processing via the energized dispersive guided extraction (EDGE) method. Using analytical techniques, including high-performance liquid chromatography (HPLC) with diode array detection (DAD) and liquid chromatography coupled with high-resolution tandem mass spectrometry featuring electrospray ionization (LC-ESI-HRMS/MS), phenolic and polyphenolic compounds were thoroughly examined. The analysis revealed the presence and quantification of twenty distinct compounds, with flowers displaying a more complex chemical composition than pods. Notably, flowers exhibited higher levels of vanillin, while the prevalence of rutin characterized pods. Compounds of interest identified in both extracts include (+)-catechin, *p*-coumaric acid, naringenin, and quercetin.

Regarding compound diversity within pods, *A. mearnsii* demonstrates similarities with other species investigated. However, regarding flower composition, *A. mearnsii* exhibited a diminished diversity of compounds compared with that in *Acacia retinodes*. Nevertheless, it displayed elevated concentrations of vanillin, *p*-coumaric acid, cinnamic acid, and naringenin.



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