

Investigating femtosecond laser processing of silica sand: Crystallization and impurity removal

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Objectives: The primary objective of this study is to isolate and characterize the major constituents of biomass derived from *Tetraclinis articulata*. Subsequently, the study aims to chemically modify these isolated natural components to synthesize novel chalcone derivatives, which have been widely recognized for their potential anticancer properties. This approach seeks to explore the structural diversity of chalcones and assess their therapeutic potential in cancer treatment. Methods: To accomplish these objectives, a multidisciplinary approach will be employed. Initially, bioactive compounds will be extracted from the sawdust of *Tetraclinis articulata* using appropriate extraction techniques. The isolated compounds will then undergo hemisynthetic modifications to generate a series of chalcone derivatives. The structural elucidation of these compounds will be performed using advanced spectroscopic techniques, including NMR spectroscopy, mass spectrometry, and chromatography. Finally, their anticancer potential will be evaluated through in vitro cytotoxicity assays against selected cancer cell lines.

Biography

Ayoub Boualli is a third-year PhD candidate in organic chemistry at the Faculty of Sciences Semlalia, Marrakech. His research focuses on the valorization of medicinal plants and the functionalization of terpenic compounds isolated from these plants. He is particularly involved in the valorization of *Tetraclinis articulata* (thuya) wood sawdust, exploring the hemisynthesis and anticancer activity of natural and hemisynthetic products. With expertise in organic synthesis and hemisynthesis, Ayoub contributes to advancing medicinal chemistry and the development of bioactive molecules.

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