



Plant-Derived Exosomes from *Gliricidia sepium* for Diabetic Wound Repair: Integrating Phytochemistry and Regenerative Medicine

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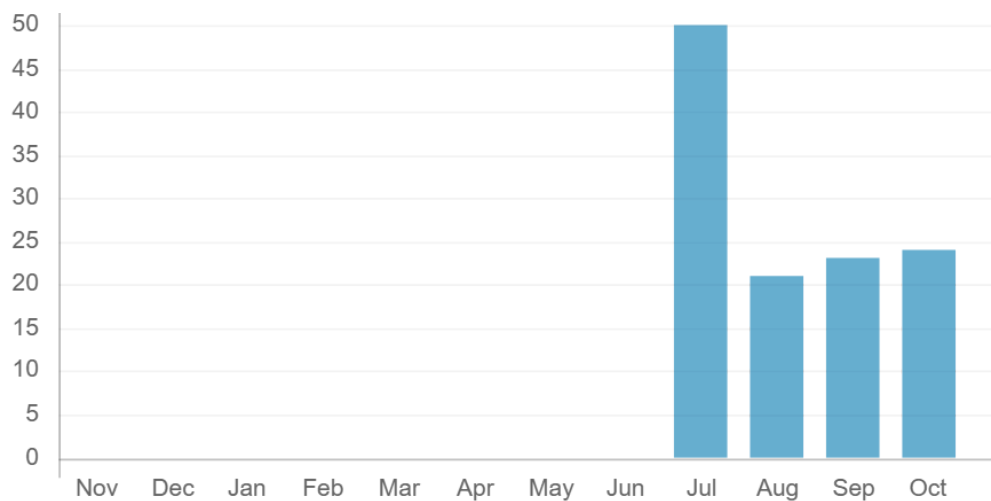
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Abstract

Diabetes mellitus is a chronic disease that is becoming increasingly prevalent globally and is a major public health concern. Diabetes and its consequences have long been effectively managed and

treated with extracts and compounds produced from a variety of natural resources, especially plants. The most serious co-morbidities include wounds related to diabetes mellitus, which can worsen and result in cell necrosis and amputation. 15% of diabetes patients have the disease, and 20% of them have their limb amputated, according to statistics on the condition of diabetic wounds as of late. In this review, leaf extracts from *Gliricidia sepium* are evaluated for their cytotoxic, wound-healing, antioxidant, and anti-diabetic qualities and combining them with the Plant-Derived Exosomes Like Nanoparticles. Studies conducted on *Gliricidia sepium* indicate the presence of bioactive compounds, notably phenolic compounds, steroidal compounds, polysaccharides, glycosides, alkaloid constituents, flavanoids, glycosidic triterpenes, and terpenoids. In addition to helping to prevent infections in DFUs, the plant has also shown strong antibacterial properties against harmful microorganisms. DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging, H₂O₂ radical scavenging, and reducing power tests were used to measure antioxidant activity. Suppression of α-amylase and α-glucosidase were used to evaluate the antidiabetic activity. Significant biological activities like anti-inflammatory and antimicrobial properties that promote wound healing, are displayed by *Gliricidia sepium*. Exosomes derived from plants have become well-known in regenerative medicine as organic nanocarriers that deliver bioactive compounds to promote tissue repair. This study emphasizes how combining cutting-edge regenerative medicine techniques using exosomes derived from plants with conventional botanical knowledge can improve therapeutic results.

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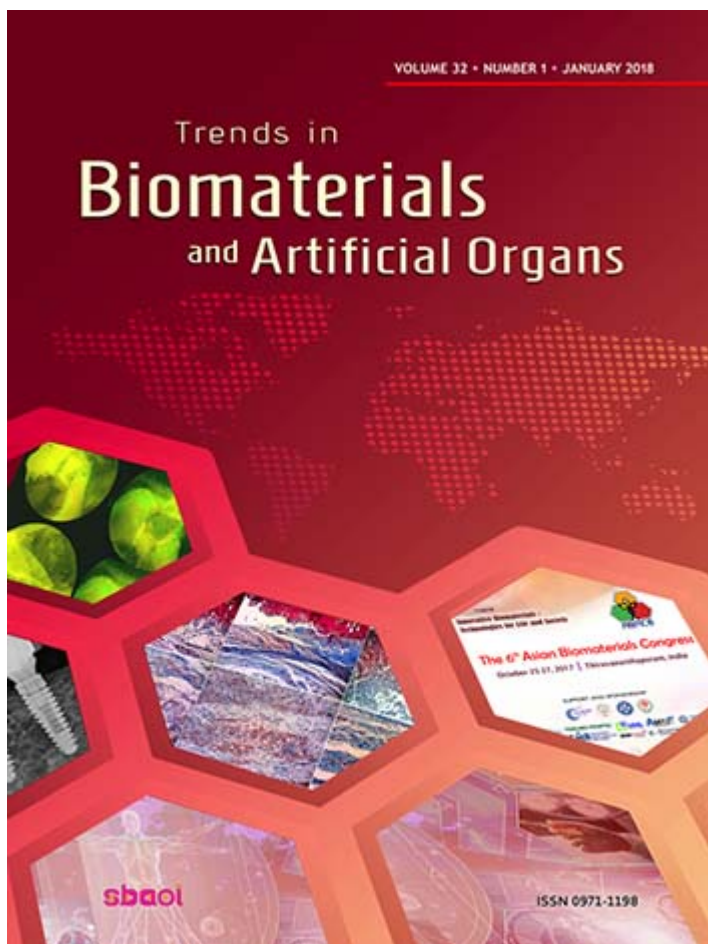
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