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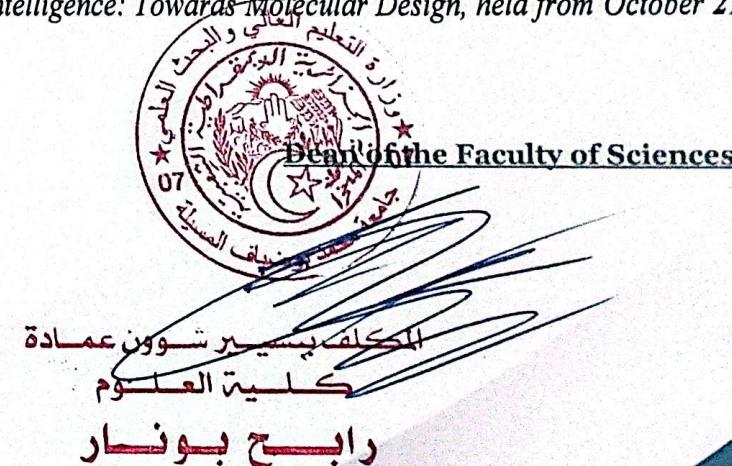
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Chairman of the seminar



Dr. BOULEGHLEM Hocine





***In vivo* wound-healing and molecular docking studies support the traditional use of *Arisarum vulgare* aqueous extract**

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Abstract

In Algerian traditional medicine, *Arisarum vulgare* O. Targ. Tozz. (Araceae), locally known as “Elbgouga”, is widely used to treat eczema, wounds and burns [1]. Investigate, using *in vivo* and *in silico* molecular docking techniques, the possible effects of *A. vulgare* ultrasound-assisted aqueous extract (AVAE) on wound healing for the first time. The phytochemical profile was elucidated by LC-ESI-MS/MS analysis. Wistar albino rats were used *in vivo* tests to evaluate the AVAE ointment's acute cutaneous toxicity and wound-healing potential (1, 2, and 5% AVAEO) [2]. Through *in silico* investigations, TNF- α , IL-1 β , MMP-9, TGF- β , VEGF, and EGFR were examined as possible therapeutic targets [3]. Twenty-seven phytochemicals, belonging mainly to the flavonoids and phenolic acids' class were identify and semi-quantify. The 5% AVAEO-treated group showed a significantly greater ($p < 0.001$) wound contraction (8–20 days) with respect to untreated and petroleum jelly groups, whereas no statistically significant difference was observed with respect to the Madecassol®-treated group. On the contrary, the two lower dosages (1 and 2% AVAEO) showed



no statistically significant effects. Docking studies showed that *A. vulgare* bioactive compounds may have therapeutic effects on wound healing by targeting with high affinity TNF α , IL-1 β , MMP-9, TGF- β R1, VEGF and EGFR, counteracting inflammation, angiogenesis and oxidative unbalance, and promoting wound repair. This study demonstrated as that AVEA possess *in vivo* wound healing properties and no dermal toxicity, shading light also on the potential therapeutic targets involved.

Keywords: *Arisarum vulgare* O. Targ. Tozz.; traditional medicine; LC-ESI-MS/MS analysis; *in vivo* wound healing activity; *in silico* molecular docking studies.

References:

- [1] Boudjelal A, Henchiri C, Sari M, Sarri D, Hendel N, Benkhaled A, Ruberto G (2013). Herbalists and wild medicinal plants in M'Sila (North Algeria): An ethnopharmacology survey. *Journal of Ethnopharmacology* 148: 395–402. <https://doi.org/10.1016/j.jep.2013.03.082>
- [2] Chabane S, Boudjelal A, Keller M, Doubakh S, Potterat O (2021) *Teucrium polium* - wound healing potential, toxicity and polyphenolic profile. *South African Journal of Botany* 137: 228–235. <https://doi.org/10.1016/j.sajb.2020.10.017>
- [3] Bouaziz-Terrachet S, Terrachet R, Tairri-Kellou S (2013) Receptor and ligand-based 3D-QSAR study on a series of nonsteroidal anti-inflammatory drugs. *Medicinal Chemistry Research* 22: 1529–1537. <https://doi.org/10.1007/s00044-012-0174-z>