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Investigating the effect of extract of Matthiola leaves on Leishmania major promastigote in culture environment and comparison of these effects with Glucantim and Amphotericin B

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Backgrounds

Cutaneous leishmaniasis is endemic in Iran. Limitations of current therapies including toxicity, adverse effects, painful injections, and possible drug resistancesupport the search for natural candidates. This study compared the in vitro antileishmanial activity of Matthiola incana leaf extract with Glucantime and Amphotericin B.

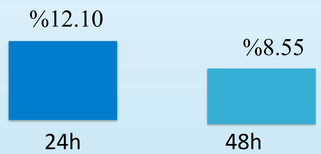
Methods

- In vitro experimental study
- Organism: logarithmic-phase L. major promastigotes (MRHO/IR/75/ER)
- Matthiola leaf extract: 0.78%–100%
- Glucantime: 12.5, 25, and 50 µg/mL
- Amphotericin B: 2 µg/mL; untreated negative control
- Incubation: 24 and 48 hours
- Viable parasites counted using a Neubauer hemocytometer; IC_{50} calculated; one-way ANOVA and repeated-measures analyses performed

Findings

- Growth inhibition was dose- and time-dependent ($P < 0.001$).
- At 24 hours, 25%–100% extract completely eliminated promastigotes and was statistically comparable to amphotericin B.
- At 48 hours, 12.5% extract showed efficacy comparable to Glucantime; higher concentrations completely suppressed parasite growth

IC_{50} VALUES
Extract IC_{50}: 12.10% at 24 h | 8.55% at 48 h



Conclusion

Matthiola leaf hydroalcoholic extract exhibits potent in vitro leishmanicidal activity comparable to reference pharmaceutical drugs, highlighting its potential as a valuable natural candidate for subsequent formulation and preclinical evaluations

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