

Policy Brief

Policy Brief on the Analgesic and Anti-Inflammatory Potential of *Chenopodium botrys* L. Extract




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Introduction

Pain relief remains a global health priority due to the limitations and side effects of opioid-based medications. The study “Investigating the Analgesic Effects of *Chenopodium botrys* L. Hydroalcoholic Extract Using Behavioral Tests on Mice” (published in Iranian Journal of Pharmaceutical Sciences, 2023) examined the plant’s analgesic and anti-inflammatory properties through behavioral models in mice [1]. The findings suggest *Chenopodium botrys* L. could provide a promising herbal alternative to conventional analgesic drugs.

Problem

Current pain management strategies heavily depend on opioids, which, despite their effectiveness, can lead to dependency, tolerance, and other adverse effects. The demand for safe, affordable, and accessible herbal analgesics is increasing, especially in regions where traditional medicine has cultural and clinical significance. There is limited research on *Chenopodium botrys* L., a plant traditionally used for its medicinal properties, highlighting the need for structured policy support to encourage further pharmacological and clinical research.

Analysis

The study employed behavioral models of pain and inflammation, including writhing, formalin, hot plate, and tail-flick tests, to evaluate the hydroalcoholic extract of *Chenopodium botrys* L. at different doses (30, 100, and 300 mg/kg).

- Doses of 100 and 300 mg/kg significantly reduced pain responses, performing comparably to morphine.
- The co-administration of naloxone, an opioid receptor blocker, reduced the analgesic effect, indicating partial action via opioid pathways.
- Similar anti-inflammatory effects were observed in the xylene-induced ear edema test, comparable to dexamethasone.
- Phytochemical analyses confirmed the presence of

References

- [1]. Mohebbati R, Beheshti F, Kakhki S, Taghavizadeh Yazdi E. Investigating the analgesic effects of *Chenopodium botrys* L. hydroalcoholic extract using behavioral tests on mice. Iran J Pharm Sci. 2023;19(3):208-216. [DOI: 10.22037/ijps.v19i3.43433]
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phenolic compounds, flavonoids, and monoterpenes, such as 1,8-cineole and limonene, all of which contribute to antioxidant and anti-inflammatory effects [2, 3].

These results highlight *Chenopodium botrys* L. as a multi-mechanistic agent, with both central and peripheral analgesic effects and minimal side-effect profiles compared to opioids or corticosteroids.

Recommendations

1. Research Development:
 - Support advanced pharmacological studies to isolate bioactive compounds and elucidate molecular mechanisms.
 - Encourage comparative studies with other analgesic herbs to assess safety and efficacy profiling.
2. Regulatory Framework:
 - Integrate *Chenopodium botrys* L. into the national herbal pharmacopeias following clinical validation.
 - Establish quality control standards for cultivation, extraction, and formulation of plants.
3. Funding and Collaboration:
 - Encourage collaboration among physiology, pharmacology, and phytochemistry departments.
 - Allocate government grants for clinical transition studies on promising herbal analgesics.
4. Public Health Integration:
 - Develop educational programs for healthcare providers on herbal analgesics.
 - Develop community-based herbal pain management guidelines under medical supervision.

Conclusion

The preclinical findings demonstrate that *Chenopodium botrys* L. possesses strong analgesic and anti-inflammatory effects similar to those of morphine and dexamethasone, likely through opioid receptor-related mechanisms and polyphenolic constituents. With structured research, regulatory frameworks, and clinical guidelines, this indigenous plant can be developed into an effective and safe alternative for pain management.

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