

Dry Distillation of *Rosmarinus officinalis*: Biochemical Extraction Methodology and Therapeutic Potential in Managing Venous Stasis in Patients with Coagulation Disorders (Factor IX Deficiency)

Author: Ekaterine JashiaSvili

Affiliation: Independent Researcher, Healthcare Technology and Clinical Biochemistry

ORCID: 0000-0002-9689-4461

Contributor Roles (CRediT):

- **Conceptualization:** Original idea, research design, and clinical rationale.
 - **Investigation:** Conducted the primary laboratory extraction of *Rosmarinus officinalis* using closed-system dry distillation, performed biochemical analysis of lipid fractions, and carried out clinical observations of the extract's therapeutic effects.
 - **Writing – Original Draft:** Preparation, data organization, and documentation of the research report.
-

Abstract:

This project presents an original methodology for the high-purity extraction of *Rosmarinus officinalis* using a specialized closed-system dry distillation technique. The study focuses on isolating key bioactive compounds, specifically 1,8-cineole and lipid-rich fractions, ensuring maximum potency and biochemical stability. The extraction process is designed for clinical applications, specifically targeting chronic venous stasis and lymphoedema in patients where invasive interventions are contraindicated, such as those with Factor IX deficiency (Haemophilia B). Initial biochemical analysis confirms the structural integrity of the extract, making it a viable candidate for topical clinical therapeutic formulations.

Keywords: *Rosmarinus officinalis*, Extraction Technology, Clinical Pharmacology, Chronic Venous Stasis, Factor IX deficiency, Phytotherapy, Healthcare.

1. Background

This study explores a non-invasive dry distillation method to obtain high-concentration extracts of *Rosmarinus officinalis*. Traditional extraction methods often compromise the structural integrity of volatile terpenes; however, the closed-system dry distillation protocol ensures the preservation of high-purity lipophilic fractions.

2. Methodology

Using a specialized closed-system distillation, we isolated lipophilic fractions rich in 1,8-cineole and camphor. To enhance bioavailability and ensure a comprehensive biochemical profile, residual fractions were recovered via controlled ethanol extraction. This dual-phase approach ensures maximum concentration of the essential therapeutic compounds.

3. Clinical Hypothesis

The research proposes a synergistic effect between rosemary terpenes and castor oil as a topical treatment for venous stasis. Specifically, in high-risk populations such as patients with Factor IX deficiency (Hemophilia B), where surgical or aggressive interventions are contraindicated, this 1.5% rosemary-castor oil infusion aims to stimulate microcirculation and lymph drainage without inducing mechanical trauma.

4. Safety Observations and Results

Initial dermatological testing revealed a potent hyperemic response, indicating high biological activity. To ensure patient safety and clinical viability, *Hypericum perforatum* oil was introduced as a biochemical buffer and radical scavenger, successfully modulating the acute hyperemic response during treatment.

5. Conclusion

The study establishes a viable clinical rationale for the use of dry-distilled rosemary extracts in managing chronic venous conditions. The methodology provides a safe, non-invasive alternative for patients with complex coagulation profiles.