



### REVIEWER'S REPORT

Manuscript No.: IJAR- 50612

Date: 11/03/2025

**Title: "Isolation and Estimation of Colchicine - A Valuable Phytochemical in the Plant Parts of *Iphigenia stellata* Blatt. Using High-Performance Liquid Chromatography"**

**Recommendation:**

- ✓ Accept as it is .....
- Accept after minor revision.....
- Accept after major revision .....
- Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance		✓		

Reviewer Name: Dr. S. K. Nath

Date: 12/03/2025

**Reviewer's Comment for Publication:**

This research provides valuable insights into the isolation and quantification of colchicine from *Iphigenia stellata* Blatt., demonstrating its high pharmaceutical potential. The use of HPLC for precise quantification, along with a well-structured extraction process, ensures scientific accuracy. However, the paper would benefit from comparative species analysis, statistical validation, and expanded pharmacological discussions to strengthen its applicability in medicine and agriculture. Despite these limitations, this study contributes significantly to phytochemical research and offers a strong foundation for future studies on colchicine production and applications.

### *Reviewer's Comment / Report*

#### Strengths of the Paper

- Well-Defined Research Objective:** The study clearly outlines its goal of isolating and estimating the quantity of colchicine in different parts of *Iphigenia stellata* Blatt. The focus on using High-Performance Liquid Chromatography (HPLC) ensures precision and reliability in quantitative analysis.
- Comprehensive Methodology:** The paper follows a structured experimental approach, covering plant collection, solvent extraction, and HPLC analysis. The quantification and isolation techniques are well-documented, allowing for reproducibility.
- Significance in Pharmaceutical and Agricultural Fields:** Colchicine has various applications, including gout treatment, cardiovascular therapy, and inducing polyploidy in plants. The study provides valuable data for future pharmacological and botanical research.
- Use of Analytical Techniques for Precision:** The HPLC chromatograms and quantitative analysis add scientific rigor to the study. The paper compares colchicine content across different plant parts (seeds, corms, and capsule walls), providing valuable comparative data.

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5. **Clear and Concise Results:** The highest colchicine yield was found in the seeds (10.6 mg/g), followed by corms (1.3 mg/g) and capsule walls (1.0 mg/g). The yield obtained through optimized extraction techniques is well presented in tables and figures.

### Areas for Improvement

1. **Lack of Comparative Data with Other Species:** The study would be stronger if it compared colchicine content in *Iphigenia stellata* with other colchicine-rich plants (e.g., *Gloriosa superba* or *Colchicum autumnale*).
2. **Limited Discussion on Optimization Strategies:** The paper mentions solvent selection and extraction conditions but does not deeply analyze how these factors influence colchicine yield.
3. **Lack of Statistical Analysis:** While HPLC results are provided, statistical validation (e.g., standard deviation, confidence intervals) would enhance result reliability.
4. **Minimal Pharmacological Discussion:** The study could expand on the bioavailability, stability, and potential medicinal applications of colchicine extracted from *Iphigenia stellata*.