

REVIEWER'S REPORT

Manuscript No.: IJAR- 58972

Title: Comprehensive Nutritional, Phytochemical and GC-MS Profiling of Fresh and Dried Chickpea (*Cicer arietinum* L.) Microgreens,

Recommendation:

Accept after minor revision

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

Reviewer's ID: Bilquees Hamza

Detailed Reviewer's Report

The manuscript presents an investigation into the nutritional, mineral, and phytochemical compositions of fresh and hot-air-dried chickpea (*Cicer arietinum* L.) microgreens, supplemented by GC-MS profiling of the dried methanolic extract. The study addresses an essential gap in food science regarding the conversion of perishable pulse microgreens into functional, shelf-stable ingredients. The analytical scope—covering proximate parameters, vitamins, major minerals, quantitative phytochemicals, and qualitative volatile screening—is broad and relevant to modern functional food development.

However, the manuscript currently suffers from significant analytical discrepancies, methodological ambiguities, and draft layout artifacts that must be corrected before publication. Most notably, there are major inconsistencies between the manuscript narrative and table data regarding drying durations, arithmetic discrepancies in compound percentages, missing essential spectral match factors in the GC-MS methodology, and persistent editorial line numbers and watermarks.

DETAILED RECOMMENDATIONS FOR IMPROVEMENT

1. Methodological and Analytical Rigor

- The authors must reconcile a direct contradiction regarding the drying duration. Section 2.4 (lines 116–117), the Abstract (line 9), and Section 3.6 (line 280) state that samples were dried at 65°C for 3 hours and 30 minutes. However, Section 3.1 (line 197) explicitly states the drying duration was 5 hours and 30 minutes. The exact duration must be verified against original lab records and standardized across all sections.

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- In Table VI and Section 3.6, compound percentages require mathematical verification. The text states that Neophytadiene was detected at three retention times with a combined peak area of 17.22% (lines 297–298). However, summing the individual peak areas in Table VI (12.08% at RT 26.659, 1.84% at RT 27.163, and 3.30% at RT 27.542) equals 17.22%, but the text initially misreports the primary peak area as 12.08% while the abstract claims major individual components differently. Similarly, 13-Docosenamide, (Z)- is listed with peak areas of 1.86% (line 288, S.No. 20) and 10.14% (line 288, S.No. 26), which sum to 12.00%. The manuscript must clarify why these isomeric or repeated elutions occur and ensure all individual and cumulative values match precisely across the Abstract, Table VI, and narrative text.
- The GC–MS reporting methodology in Section 2.12 lacks critical analytical details. The authors must state the specific GC–MS instrument model, capillary column specifications (e.g., stationary phase, length, internal diameter, film thickness), carrier gas flow rate, oven temperature program, and mass library used for identification (e.g., NIST, Wiley) along with match quality percentages or Si/RSI values.
- The detection of lidocaine (2.17%, S.No. 13) in a plant extract is anomalous. The authors correctly note in line 335 that lidocaine is a synthetic pharmaceutical. However, rather than simply noting this, the authors must address whether this represents laboratory/procedural contamination or a misassignment by the spectral library.

2. Theoretical Deepening and Data Presentation

- The discussion across Sections 3.1 to 3.5 attribute nearly all compositional increases in the dried samples solely to moisture removal and mathematical concentration. The authors should expand their discussion to evaluate whether thermal processing at 65°C caused thermal degradation of heat-labile vitamins (such as Vitamin C) or enhanced the extractability of bound phenolics due to cell wall disruption, rather than assuming purely passive concentration.
- The manuscript would benefit from a structured summary comparison outlining the impact of dehydration across primary nutritional groups. A clear overview comparing fresh versus dry-weight bases will help highlight true retention versus concentration artifacts.

3. Structural Layout, Formatting, and Text Cleanup

- The manuscript contains pervasive draft markup artifacts, including continuous line numbering (lines 1–449), raw running watermarks ("PEER REVIEW IN IJAR", "REVIEW IN IJAR"), and inline structural fragments. These layout artifacts must be completely removed.

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- In Table I, the row headers for proximate parameters (Moisture, Ash, Crude Fat, Crude Protein, Crude Fibre) are missing or misaligned in the layout grid (lines 193–194). Table I must be reformatted with explicit, clearly labeled parameter rows.
- Figure I and Figure II require proper formatting. Figure II (the GC–MS chromatogram) is low-resolution and cropped unevenly, obscuring peak labels between 20 and 30 minutes. A high-resolution, vector-quality chromatogram with clear peak integrations must be provided.

CONCLUSION AND FINAL RECOMMENDATION

This study provides valuable baseline data on the nutritional and volatile profile of chickpea microgreens and demonstrates their potential utility in functional food formulations. However, the manuscript requires rigorous corrections regarding drying parameters, mathematical auditing of GC–MS peak areas, complete instrument reporting, and thorough layout cleanup prior to publication.

Recommendation: Revisions Required