

REVIEWER'S REPORT

Manuscript No.: IJAR-53472

Date: 22-08-2025

Title: BIOACTIVITIES AND POTENTIAL APPLICATION OF INDIAN RED AND BROWN ALGAE IN PHARMACEUTICS

Recommendation:

Accept as it isYES.....

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 Aamina**

Reviewer's Comment for Publication.

Abstract and Scope:

The abstract provides a clear and comprehensive overview of the pharmacological potential of Indian red and brown algae. It highlights their rich biochemical diversity, outlines the range of bioactive compounds, and emphasizes the spectrum of therapeutic activities. The scope of the review is well articulated, covering both species-specific analysis and broader pharmacological implications, while also acknowledging challenges related to clinical translation and standardization. Keywords are appropriate and accurately reflect the content.

Introduction:

The introduction effectively situates the research within both traditional and modern contexts. It underscores the longstanding use of marine algae in food, agriculture, and medicine, before transitioning to their contemporary significance in pharmacological research. The reference to key classes of bioactive compounds such as sulfated polysaccharides, phlorotannins, and flavonoids provides a scientific foundation for the subsequent review. Citations to relevant preclinical studies are used to support claims regarding biological activities.

Scientific Relevance:

The manuscript addresses an important field of marine pharmacology, particularly focusing on algae from Indian coastal ecosystems. The emphasis on species such as *Gracilaria edulis*, *Kappaphycus alvarezii*, *Turbinaria conoides*, and *Padina tetrastrum* ensures specificity and relevance. The discussion of diverse bioactivities—anticancer, antidiabetic, antioxidant, antimicrobial, neuroprotective, antihypertensive, and anti-obesity—demonstrates the broad therapeutic spectrum and potential applications in pharmaceuticals.

Strengths of the Work:

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- A strong linkage between chemical constituents and pharmacological properties.
- Balanced attention to both red and brown algae, with specific examples from the Indian context.
- Acknowledgment of the need for translational research, bioavailability studies, and standardization of marine-derived compounds.
- Consideration of sustainability, which enhances the practical relevance of the review.

Overall Assessment:

This review is comprehensive, scientifically grounded, and clearly presented. It contributes to the growing literature on marine pharmacology by emphasizing the pharmacological potential of Indian red and brown algae, while also outlining key bioactivities and biochemical constituents. Its integration of traditional usage, modern biochemical research, and pharmaceutical application highlights the significance of algae as sustainable sources of novel therapeutic agents.
