ISSN(O): 2320-5407 | ISSN(P): 3107-4928

ISSN NO. 2320-5407

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR-55691

Title: Evaluation of Corneal Wound Healing Activity of Glycyrrhiza glabra Ophthalmic Formulation by In-vitro Scratch Assay

Recommendation:

Accept as it is .....YES.....

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: PROF. DR DILLIP KUMAR MOHAPATRA

Detailed Reviewer's Report

Title: *Evaluation of Corneal Wound Healing Activity of Glycyrrhiza glabra Ophthalmic Formulation by In-vitro Scratch Assay*

1. Strengths of the Study

1.1 Novel Research Concept

The work introduces an **Ayurvedic herbal ophthalmic formulation** using *Glycyrrhiza glabra* for corneal wound healing, which is **rarely explored** in current scientific literature.

Combines **traditional medicine** with a **modern in-vitro model**, adding translational relevance.

1.2 Strong Experimental Design

Uses a well-established **SIRC corneal cell line**.

Follows a detailed, reproducible **scratch assay protocol**.

Clear quantitative endpoints:

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REVIEWER'S REPORT

Scratch width (μm)

Percent wound closure

Rate of cell migration

IL-6 concentration

Inclusion of **control, standard, and trial groups** strengthens comparative interpretation.

1.3 Use of Standard Statistical Analysis

Application of **ANOVA with Tukey's post-hoc test** is appropriate.

Results show statistically significant improvements ($p<0.05$).

1.4 Good Documentation

Provides:

Photographic images

Graphs and tables

SOP-based procedures

Ethical approval

Detailed phytochemical analysis and standardization
This improves overall manuscript credibility.

1.5 Potential Clinical Relevance

Suggests a **cost-effective, preservative-free** formulation.

Valuable for regions with high corneal morbidity, such as India.

2. Weaknesses of the Study

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REVIEWER'S REPORT

2.1 Entirely In-Vitro Study

No in vivo, ex-vivo, or clinical evidence to strengthen translational impact.

Scratch assay alone may not fully represent the complexity of corneal physiology.

2.2 Limited Mechanistic Insights

Only IL-6 is evaluated.

No assessment of:

Growth factors (EGF, VEGF)

Fibroblast activity

ECM remodeling markers
These could strengthen the mechanistic understanding.

2.3 Small Duration of Study

The observation window of 48 hours is short.

Long-term behavior of cells (re-epithelialization, differentiation) is not studied.

2.4 Missing Standard Details

Exact concentration of *Glycyrrhiza glabra* in formulation is not stated clearly.

Sterility testing and ocular irritation potential not discussed.

2.5 Formatting & Language

Minor grammar, spacing, and flow issues.

Some sentences are overly long and need refinement for journal clarity.

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3. Significance of the Study

ISSN(O): 2320-5407 | ISSN(P): 3107-4928
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3.1 Contribution to Ophthalmic Research

Provides new scientific insight into **herbal-based corneal wound healing**.

Encourages research into safe, non-preservative alternatives for ophthalmic therapy.

3.2 Public Health Importance

Corneal blindness is a major health burden, especially in developing countries.

A low-cost treatment alternative could be highly impactful.

3.3 Scientific Advancement

Demonstrates that *Glycyrrhiza glabra* significantly enhances:

- Rate of corneal epithelial cell migration
- Wound closure
- Reduction of inflammatory marker IL-6

This supports further translational research into herbal ophthalmic therapeutics.

4. Key Points of the Manuscript

Glycyrrhiza glabra shows **significant wound healing potential** in SIRC cell line scratch assay.

Enhanced:

- Cell migration rate
- Percent wound closure

Lower IL-6 levels indicate **anti-inflammatory activity**.

Formulation appears **preservative-free, economical, and easy to prepare**.

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Provides supporting phytochemical and physicochemical standardization data.

Suggests potential for Ayurvedic-based ophthalmic therapy.