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BOOK OF ABSTRACTS

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DEVELOPMENT AND EVALUATION OF NOVEL WOUND HEALING PRODUCT FROM CHICKEN FEATHER PROTEIN

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Keywords: Wound healing, Chicken feather protein, Keratin, Genistein.

Aim: Development and evaluation of novel wound healing product from chicken feather protein.

Objectives:

- Extraction and characterization of Chicken feather keratin
- Standardization of Genistein
- Formulation development of stable wound healing product by using chicken feather protein
- To investigate the effect of Genistein as an epidermal growth factor (EGF) in an incision model of wound healing

Methodology: Keratin was extracted from chicken feather and Genistein extracted from soybean. Keratin was evaluated for conformational analysis by SEM, FTIR and amino acid profiling. Genistein was evaluated by FTIR and HPTLC. Wound healing hydrogel was then prepared by using the different concentrations of Keratin and Genistein. Optimized formulations were selected on the basis of pH, viscosity, spreadability and consistency. The optimized formulations were subjected to *in-vivo* wound healing activity and organ toxicity study.

Table 1: Optimized formulations of 2% Keratin gel, 1% Genistein gel & Keratin - Genistein gel

Ingredients	Optimized formulation of 2% Keratin gel	Optimized formulation of 1% Genistein gel	Optimized formulation of Genistein Keratin gel
Carbopol 934	50 g(1% w/v)	50 g (1% w/v)	50 g (1% w/v)
Keratin	1g	-	1g
Genistein	-	0.5g	0.5g
Cremophor RH 40	3mL	-	3mL
Methyl paraben	0.01g	0.01g	0.01mL
Propyl paraben	0.01g	0.01g	0.01mL

Results and Discussion: The optimized wound healing formulation of Keratin - Genistein gel showed effective results of gel strength, pH, viscosity, spreadibility, drug contents. HPTLC study shows presence of both components in the gel without any interactions. The results of *in-vivo* study indicated that feather keratin hydrogel significantly accelerated the wound healing compared to untreated group. Organ toxicity study reveals safety of developed combination product.

Conclusion: Feather keratin hydrogel with combination of Genistein shows significant wound healing effect and safety. These results collectively suggest that feather keratin hydrogel in combination with Genistein could be used for biomedical applications.