

9th World Convention on

WASTE RECYCLING AND REUSE

March 11-12, 2019 Singapore



Nilesh M Mahajan

Dadasaheb Balpande College of Pharmacy, India

Development and evaluation of wound healing hydrogel from chicken feather protein

Chicken feathers are the largest bio-waste produced across the world. Available uncontrolled disposal methods are not ecofriendly. Chicken feathers consist of about 91% keratin protein. Keratin is a cysteine-rich structural protein with unique characteristics of bioactivity, biocompatibility, biodegradability and natural abundance. Protein component contains a defined three dimensional microstructure that aids in cellular proliferation and cell guided tissue formation. Genistein is a secondary metabolite isoflavones found in soybean. Genistein protects human dermal fibroblasts from oxidative stress-induced collagen biosynthesis inhibition thus acting as an epidermal growth factor. In this research keratin was extracted, purified and characterized to be used in wound healing hydrogel containing genistein. Purified keratin was tested for conformational analysis by FTIR, SEM, SDS-PAGE, amino acid profiling. Extracted keratin was found to retain all the characteristic values with reference standard. The formulated product was then tested for efficacy by *in vivo* wound healing activity and safety. The optimized wound healing formulation of keratin-genistein gel showed effective results of gel strength, pH, viscosity, spreadability and drug contents. HPTLC study shows presence of both components in the gel without any interactions. Stability study indicates that the formulation was fairly stable. 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.

Biography

Nilesh M Mahajan has completed his PhD from Amravati University, India in Pharmaceutical Sciences. He is currently working as the Head, Department of Pharmaceutics at Dadasaheb Balpande College of Pharmacy, India. He has published 40 papers in reputed journals, granted one international patent. He has design copyright for *in vitro* dissolution tester.

nmmahajan78@gmail.com

Notes: