

## Formulation and Pharmacological Screening of *In Vivo* Wound Healing Activity of Puerarin Ointment Isolated from *Tridax procumbens*

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**SUMMARY.** Traditionally *Tridax procumbens* is known to possess wound healing properties. The extracts of *T. procumbens* have a wide range of pharmacological actions such as anti-diabetic, anti-inflammatory, analgesic, antimicrobial, antiviral, anticancer, and neuroprotective activities. Previously various phytoconstituents were isolated from different parts of *T. procumbens*. The present study is aimed to isolate and characterize puerarin from leaves of methanol extract of *T. procumbens*. The isolated puerarin was formulated as polyethylene glycol (PEG) based ointment and evaluated for *in vivo* wound healing activity. The isolated puerarin was characterized by using <sup>1</sup>H & <sup>13</sup>C NMR and a further method was developed by using LC-MS/MS using mobile phase methanol and 0.1 % formic acid and found a retention time of 1.13 min. The isolated puerarin was formulated as polyethylene glycol (PEG) based ointment and further pharmacologically screened for *in vivo* wound healing activity by excision wound model using male Wistar rats. The wounded animals were applied ointment every day with 0.05% puerarin for 14 days. The animals treated with PEG-puerarin ointment have shown a significant decrease in wound contraction. These findings could suggest that PEG-puerarin ointment has the potential for wound healing activity.

**RESUMEN.** Tradicionalmente se sabe que *Tridax procumbens* posee propiedades curativas de heridas. Los extractos de *T. procumbens* tienen una amplia gama de acciones farmacológicas tales como actividades antidiabéticas, antiinflamatorias, analgésicas, antimicrobianas, antivirales, anticancerígenas y neuroprotectoras. Previamente, se aislaron varios fitoconstituyentes de diferentes partes de *T. procumbens*. El presente estudio tiene como objetivo aislar y caracterizar puerarin a partir de hojas de extracto metanólico de *T. procumbens*. La puerarina aislada se formuló como un ungüento a base de polietilenglicol (PEG) y se evaluó su actividad de cicatrización de heridas *in vivo*. La puerarina aislada se caracterizó usando RMN de <sup>1</sup>H y <sup>13</sup>C y se desarrolló un método adicional usando LC-MS/MS usando metanol de fase móvil y ácido fórmico al 0,1 % y se encontró un tiempo de retención de 1,13 min. La puerarina aislada se formuló como un ungüento a base de polietilenglicol (PEG) y se examinó farmacológicamente para determinar la actividad de cicatrización de heridas *in vivo* mediante un modelo de herida por escisión utilizando ratas Wistar macho. A los animales heridos se les aplicó pomada todos los días con puerarin al 0,05% durante 14 días. Los animales tratados con pomada de PEG-puerarin han mostrado una disminución significativa en la contracción de la herida. Estos hallazgos podrían sugerir que la pomada de PEG-puerarin tiene el potencial para la actividad de cicatrización de heridas.

**KEY WORDS:** *Tridax procumbens*, Puerarin, NMR, Polyethylene glycol, Ointment, Wound healing.

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