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Formulation and Evaluation of Allicin and Curcumin Gel Improves Normal and Diabetic Ulcers in Rabbits

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***SUMMARY*. Allicin is one of the pharmacologically active sulfur compound of *Allium sativum* and curcumin, the main curcuminoid of *Curcuma longa*. Both are used extensively as a household remedy for the wound care and diabetes mellitus in the sub-continent. The goal of this study was to have a preparation that is inexpensive to prepare so that individuals at risk for the development of non-healing skin ulcers can utilize it on a long-term basis as a wound preventative. A 20% w/v gel of each (allicin:curcumin with optimized ratio 1:2) was made using Carbopol-940 in the concentration of 5% and evaluated for normal and diabetic wounds. The potential of allicin and curcumin gel (ACG) treatment was studied against experimentally induced excision wound on the thigh of rabbits under ketamine anesthesia. The decrease in wound size was judged by using a scale. Rabbits were divided into six Groups (6 rabbits each). Group 1 (normal wound) and Group 2 (diabetic wound) treated with povidone-iodine (PI), Group 3 (normal wound) and Group 4 (diabetic wound) were treated with ACG and Group 5 (normal wound) and Group 6 (diabetic wound) treated with distilled water. After 9th post wounding day, ACG exhibited better and significant wound healing ($p < 0.05$) against normal and diabetic wounds. We concluded that the gel of allicin and curcumin possess excellent wound healing activity and can be used as an alternative medicine for wound care.**

RESUMEN. La alicina es uno de los compuestos de azufre farmacológicamente activos de *Allium sativum* y curcumina es el principal curcuminoide de *Curcuma longa*. Ambos se usan ampliamente como un remedio casero para el cuidado de heridas y diabetes mellitus en el subcontinente. El objetivo de este estudio fue tener una preparación que sea barata de preparar para que las personas en riesgo de desarrollar úlceras cutáneas no curativas puedan utilizarla a largo plazo como preventivo de heridas. Se preparó un gel al 20% p/v de cada uno (alicina:curcumina en relación optimizada 1:2) usando Carbopol-940 en una concentración del 5% y se evaluó para heridas normales y diabéticas. Se estudió el potencial del tratamiento con alicina y gel de curcumina (ACG) contra la escisión inducida experimentalmente en muslo de conejos bajo anestesia con ketamina. La disminución en el tamaño de la herida se juzgó usando una escala. Los conejos se dividieron en seis grupos (6 conejos cada uno). Grupo 1 (herida normal) y grupo 2 (herida diabética) tratados con povidona yodada (PI), grupo 3 (herida normal) y grupo 4 (herida diabética) fueron tratados con ACG y grupo 5 (herida normal) y grupo 6 (herida diabética) tratados con agua destilada. Después del noveno día posterior a la herida, ACG exhibió mejor y significativa curación de heridas ($p < 0.05$) frente a heridas normales y diabéticas. Concluimos que el gel de alicina y curcumina posee una excelente actividad de curación de heridas y puede usarse como medicina alternativa para el cuidado de heridas.

KEY WORDS: allicin, cucumin, diabetic ulcer, excision wounds, skin damage, wound-repair.

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