SHORT COMMUNICATION

Wound Healing Activity of Curcuma longa with Oleum olivae

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Abstract

Wound healing may be defined as a loss or breaking of cellular and anatomic or functional continuity of living tissues. In the present investigation, wound healing activity of Curcuma longa with Oleum olivae was carried out. The progressive decrease in the wound area was monitored every 3 days tracing the wound margin on a tracing paper and assessed using group paper. The wound contraction was measured as percentage reduction in the wound area in each animal and the damaged skin prior to treatment and regenerated skin after treatment was examined. The wound applied with Curcuma longa powder with Oleum olivae showed a faster contraction when compared to normal control.

Keywords: Wound healing, Curcuma longa, Oleum olivae, wound contraction, percentage reduction.

Introduction

Several highly dynamic integrated services of cellular, physiological and biochemical processes takes place during wound healing. The three mechanisms of wound healing are contraction; epithelization and connective tissues deposition and these mechanisms are manifested along three main stages of healing process: Inflammation, proliferation and remodelling. These stages may be delayed or reduced due to several factors including bacterial infection, necrotic tissue and interference with blood supply, lymphatic blockage or diabetes mellitus. However, if one is able to overcome this factor faster, wound healing rate may be attained (Saipurana et al., 1995). There are several synthetic and natural compounds being targeted for wound healing properties. Rhizome powder of Curcuma longa has been described in traditional folk medicine is also well established in animal models of excision wound (Diwan et al., 1982). Keeping the above facts in mind, this little piece of investigation on wound healing activity of Curcuma longa with Oleum olivae was carried out.

Materials and methods

Preparation of test compound: Rhizomes of Curcuma longa were collected from their natural habitat, dried and finely powdered in a grinder. The powder was stored in an air tight container. The required quality of the powder was weighed and mixed with olive oil daily and prior to application.

Selection of animals and housing conditions: Healthy male rabbits are taken at animal colony at Padmavathi College, Dharmapuri, Tamil Nadu from the original stock obtained. The environment conditions of the room were as per specific design. A 10% air exhaust in the air conditioning unit was maintained along with a relative humidity of 60±5% and a temperature of 25±3°C was stabilized. A 12 hour light or dark cycle was also regulated for the experimental animals. Amrut Certified rodent diet and tap water was provided to the experimental animals. All experimental protocols were reviewed and accepted by Institutional Animal house Ethics Committee (IAEC).

Methods: Dried powder of rhizome of Curcuma longa with olive oil base (Oleum olivae) was prepared. On the day of the study, 3 animals were removed from the cages, their backs were shaved and then cleaned with 70% alcohol and four circular areas of approximately 100 mm were marked out with Indian ink on either side of the scalpel and scissors. The wound were randomly marked as control, positive control and test. Accordingly in each of the three animals, the control wound was left as such, the positive control was applied with the providone-iodine and the test wound was applied with the powdered rhizome in oil base. The application was carried out once in a day and was repeated daily for the next 15 post operative days or until the wound healed, whichever was earliest.

Data evaluation: The progressive decrease in the wound area was monitored every 3 days tracing the wound margin on a tracing paper and assessed using group paper. The wound contraction was measured as percentage reduction in the wound area in each animal. The damaged skin prior to treatment and regenerated skin after treatment was examined histopathologically.

Results and discussion

The wound applied with the Curcuma longa powder with Oleum olivae showed a faster contraction when compared to normal control.
The result of excision wound model on 3rd day in normal control was 34.22±10.26, in positive control it was 45.60±6.2, on 15th day in normal control it was 96.46±3.99, in positive control it was 99.24±2.01 and in the test control it was 99.86±1.53 (Table 1). Curcuma longa with in olive oil treated the group showed faster contraction when compared to control group (Fig. 1). Antimicrobial emulsion based on biopolymer containing neem and turmeric extract for wound covering was investigated by Jagannadh and Rathika (2006). Role of curcumin, a naturally occurring phenolic compound of turmeric in accelerating the repair of excision wound, in mice whole body exposed to various doses of gamma radiation was investigated by Jagetia and Rajinikant (2004).

**Conclusion**

This study concludes that the wound applied with Curcuma longa powder with Oleum olivae showed a faster contraction when compared to normal control and hence, it can be formulated in near future for wound healing therapy.

**References**


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<thead>
<tr>
<th>Group</th>
<th>Day 3</th>
<th>Day 6</th>
<th>Day 9</th>
<th>Day 12</th>
<th>Day 15</th>
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<tbody>
<tr>
<td>Normal control</td>
<td>34.22 ± 10.2</td>
<td>49.58 ± 8.48</td>
<td>65.06 ± 6.52</td>
<td>89.08 ± 5.25</td>
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<tr>
<td>Positive control</td>
<td>45.60 ± 6.2</td>
<td>50.28 ± 5.25</td>
<td>68.05 ± 3.75</td>
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<td>99.24 ± 2.01</td>
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<tr>
<td>Test control</td>
<td>58.10 ± 5.01</td>
<td>63.67 ± 3.98</td>
<td>80.52 ± 3.25</td>
<td>97.01 ± 2.43</td>
<td>99.86 ± 1.53</td>
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Lane 1a. Wound on 0 day (Normal control); Lane 1b. Wound on 0 day (Positive control); Lane 1c. Wound on 0 day (Test control); Lane 2a. Wound on 3rd day (Normal control); Lane 2b. Wound on 3rd day (Positive control); Lane 2c. Wound on 3rd day (Test control); Lane 3a. Wound on 6th day (Normal control); Lane 3b. Wound on 6th day (Positive control); Lane 3c. Wound on 6th day (Test control); Lane 4a. Wound on 9th day (Normal control); Lane 4b. Wound on 9th day (Positive control); Lane 4c. Wound on 9th day (Test control); Lane 5a. Wound on 12th day (Normal control); Lane 5b. Wound on 12th day (Positive control); Lane 5c. Wound on 12th day (Test control); Lane 6a. Wound on 15th day (Normal control); Lane 6b. Wound on 15th day (Positive control); Lane 6c. Wound on 15th day (Test control).