

# EFFECT OF A NEW COMBINED OINTMENT WITH DIHYDROQUERCETIN, COENZYME Q10 AND LICORICE EXTRACT ON BURN WOUND HEALING IN RATS

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**Objectives.** To study the effect of a topical ointment with dihydroquercetin, coenzyme Q10 and licorice extract (LCD) on healing of burn wound in rats. And to compare the efficacy of rutin and dihydroquercetin in the composition of the ointment.

**Materials and methods.** Partial thickness burn wounds were reproduced on 20 albino rats, weighting 260-300 g under ketamine (100 mg/kg) anesthesia by pouring hot molten wax at 80°C into pattern of 4 cm<sup>2</sup> placed on the animals' side. Rats were divided into four groups of 5 animals each: 1<sup>st</sup> - control group, 2<sup>nd</sup> – LCD ointment group, 3<sup>rd</sup> – methyluracil ointment group (reference-drug), 4<sup>th</sup> – LCR ointment group (treated with ointment containing rutin, coenzyme Q10 and licorice extract). The formulations were applied topically once daily. Evaluation was done by measuring wound contraction and recording the period of epithelization.

**Results and discussion.** Our study revealed that topical application of LCD and LCR ointments decreased healing time by 6.8 and 4.4 days, respectively compared to the control group ( $p \leq 0.05$ ). Crust rejection in LCD ointment group started from the day 9 and the mean epithelization period was 14.8 days, which is 31.5% less compared to the control group ( $p \leq 0.05$ ) and 28.1% less compared to methyluracil ointment group ( $p \leq 0.05$ ). Epithelization period in LCR group was 17.2 days and was significantly lower than in control group ( $< 20.4\%$ ,  $p \leq 0.05$ ) and comparing to the reference-drug ( $< 16.5\%$ ,  $p \leq 0.05$ ). However, no significant differences between LCD and LCR ointment groups were found. Assessment of wound contraction percentage have shown that on the day 5 burn area decreased by 63.5% and on the day 15 – by 98.2% in LCD treated group, which exceeded control group by 20.9% and by 19.95%, respectively. In LCR ointment group percentage of wound contraction was on the day 5 – 44.6% and on the day 15 – 94%, which exceeded control group by 10.55% and 9.2%, respectively.

**Conclusion.** The present study shows a significant improvement in burn wound contraction in rats treated by LCD ointment. It also showed improved healing in LCR ointment group. Based on these we propose that ointment LCD could significantly enrich the assortment of topical medications available for the treatment of burns and its prohealing property can be explored further by future studies.