

# EFFECTS OF MECAMIX IN BURNS TREATMENT AND ITS ACUTE TOXICITY

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## Abstract

**Objective:** To study the MECAMIX effects in burned treatment and acute toxicity. **Methods:** Burn model using rabbit's buttock, use Behrent and Karber's methods to determine the range of acute toxicity. **Results:** MECAMIX reduces rapidly the inflammation, toxicity in the safe range.

**Key words:** MECAMIX, burned treatment, acute toxicity

## 1. BACKGROUND

MECAMIX which is derived from a Vietnamese traditional burned treatment method is made from the betel nut, sesame oil, vaseline, etc., MECAMIX has effective treatment, simple ingredients, easy preparation, low cost and suitable for mass.

This study uses rabbit's buttock to determine the range of MECAMIX's acute toxicity.

## 2. MATERIALS AND METHOD

### 2.1. Materials

- Using the rabbits which were collected from Experimental Animal Center of Guangxi Medical University. The rabbits were about 2-2.5 kg and have the same nourish conditions and environment.

- Kunming mice were 18 ~ 22g, Clean Animal, provided by the Experimental Animal Center of Guangxi Medical University.

- Drug: MECAMIX, sesame oil, Vaseline, saline are provided by Hue University of Medicine and Pharmacy; betel stone water decoction is prepared in Guangxi Medical University.

### 2.2. Method

MECAMIX with Vaseline, saline contrast: 30 rabbits were randomly divided into three groups: MECAMIX (group A), vasaline (control group), sesame oil (group B), before performing the experimental rabbits buttocks hair removal, with scissors 5 × 5 cm fur to the buttocks, the electricity

fader turned down fine hair, and moistened with water. After 30 minutes without the use of light-emitting infrared light 110 volt, 220 watt rabbits in 5 seconds modeling contact area caused deep II degree burns III shallow wounds, trauma area average of 3.5 × 3.5 cm. 30 min after injury.

Washing the wound with saline, start applicator. Cover the drug to keep all the burn area, one day applicator 1, using a saline flush before each applicator traumatic wounds, burns continuously wound applicator 10d, 10d stops from the applicator to the first 20d complete. Before each applicator with a saline flush the wound and the wound healing area measuring with calipers, recording wound condition, results recorded into injury after 24h, 72h, 7d, 10d, 20d.

MECAMIX with sesame oil, betel stone powder comparison: 30 rabbits were randomly divided into three groups: MECAMIX (control group), sesame oil, betel stone powder. Steps like above experiment.

For the toxicity of MECAMIX, the experiment on the mice that use 6 groups of mice for testing, the group mice used different dose, observe the number of dead mice and the frequency of death, then fatal toxic dose calculated according to mathematical formulas.

### 2.3. Statistical analysis

Respectively, compared with the control group, inter-group T test statistics.

## 3. RESULTS AND DISCUSSION

**Table 1.** MECAMIX with Vaseline, saline group healing narrow area (n = 10,  $\bar{x} \pm s$ , cm<sup>2</sup>)

Group	Number	24 hours	72 hours	7 days	10 days	20 days
MECAMIX	10	9.00±0.08	3.23±0.56	1.49±0.14	0.77±0.08**	0.08±0.01**
Vaseline	10	8.89±0.21	13.07±0.60	11.77±0.62	7.54±0.43	3.43±0.34
NaCl 0.09%	10	10.03±0.27	13.50±1.09	11.92±0.48	10.43±0.93	4.98±0.26

Note: Compared with MECAMIX group: \*  $p < 0.05$ , \*\*  $p < 0.01$ .

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Table 1 shows that, after 24 hour treatment MECAMIX group of small differences can be seen in two experiments, showing the area of wound healing significantly reduced 7d, the two experiments are not major changes. 20d in MECAMIX group, the wound has healed but the

two sets of experiments wound area are also great. Narrow area MECAMIX experimental group and healing of the area are less than two sets of experiments. The difference was statistically significant. Treatment proved MECAMIX a certain role.

**Table 2.** MECAMIX with sesame oil, betel nut powder group healing stone narrow area (n=10,  $\bar{x} \pm s$ ,  $\text{cm}^2$ )

Group	Number	24 hours	72 hours	7 days	10 days
MECAMIX	10	12.00 $\pm$ 0.32	8.01 $\pm$ 0.29	1.04 $\pm$ 0.14*	0.21 $\pm$ 0.061**
Sesame oil	10	13.16 $\pm$ 0.25	10.43 $\pm$ 0.27	4.97 $\pm$ 0.30	1.39 $\pm$ 0.12
Betel stone powder	10	12.07 $\pm$ 0.26	8.10 $\pm$ 0.66	1.65 $\pm$ 0.52	1.04 $\pm$ 0.12

Note: Compared with MECAMIX group: \*  $p < 0.05$ , \*\*  $p < 0.01$ .

Table 2 shows that, MECAMIX after 24 hour treatment with two experimental groups, there have statistical differences, but 7d wound healing area reduced significantly, in betel stone powder group, the effectiveness is higher than the sesame oil group, healing area 20d after MECAMIX group reduced significantly associated with two sets of experiments. The difference was statistically

significant. Treatment proved MECAMIX a certain role.

According to Karber and Behren methods, it is possible to divide into 6 groups: a dose group was 15g/kg; a dose administered group was 22.5g/kg; 3 dose group was 33.7g/kg, 4 to Group dose of 50.6g / kg, administered dose of five groups of 75.9g/kg, the control group with distilled water.

**Table 3.** LD<sub>50</sub> acute toxicity test results

Group	Control group	Group 1	Group 2	Group 3	Group 4	Group 5
n	10	10	10	10	10	10
Dose (g/kg)	0(*)	15	22.5	33.7	50.6	75.9
Number of deaths	0	0	2	6	8	10
Frequency of deaths	0	0	20	60	80	100

(\*) The control group with distilled water Mice started to die in a dose group and 22.5g/kg, time of administration, 15 minutes to 20 minutes, all the mice died in the first group and the dose of 5 75.9g / kg.

LD<sub>50</sub> dose is calculated according to the method according to Behren and Karber

$$LD_{50} = LD_{100} = - \frac{\sum ab}{n}$$

a = 1; 4; 7; 9; b = 7.5; 11.2; 16.9; 25.3

$$LD_{50} = 75.9 - \frac{(7.5 \times 1) + (11.2 \times 4) + (16.9 \times 7) + (25.3 \times 9)}{10}$$

$$LD_{50} = 36 \text{ g/kg}$$

Through acute toxicity test, recognized as MECAMIX burn drug use on the human body is safe, you can use the treatment of burns wounds (Table 4)

#### 4. CONCLUSION

Integrated number of experimental results, we found that the effects of the treatment of burns MECAMIX can be separated in two main aspects: 1. Wound healing quickly, simple preparation, low cost, good effect with the treatment of burns. Toxic 2. MECAMIX used in security safe range LD50 = 36g/kg.

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