



RESEARCH ARTICLE

Effect of *Pistacialentiscus L.* fruit's oil on human skin burn

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Abstract

In this study we demonstrate effect of *Pistacia lentiscus L.* fruits oil on human skin burn caused by a hot utensil. Burn wound healing was assessed by measures of diameter wound area and blister with morphological evaluation throughout the experimentation period. The results shown that mastic tree fruit's oil is an active healing agent, has particularity to accelerate cicatrizing activity without putrefaction.

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Introduction

Mastic tree *Pistacia lentiscus L.* is found in different Mediterranean countries (Zrira et al., 2003) France, Italy, Greece, Tunisia, Morocco and Algeria. Since long times, different parts of this plant are used in traditional medicine, however several researchers are interested by the chemical composition of *Pistacia lentiscus L.* oil (Amhamdi et al., 2009).

Different studies proved that *Pistacia lentiscus L.* fruit's oil has a lot proprieties: antimicrobial (Magiatis et al., 1999) and (Fazeli-Nasab and Fooladvand, 2014), antiviral (Mouhadjir et al., 2001), antioxidant (Gardeli et al., 2008), anti-inflammatory (Maxia et al., 2011) and healing burns activity (Djerrou et al., 2013), against the mastic is used in treatment of duodenal ulcers (Al-Habbal et al., 1984),

Human skin burns shows different degrees, first, second and third. According to the burns degree, treatment differs, because proliferation of epithelial cells is a complex process which allow the epidermis regeneration (Brown et al., 1989).

MATERIALS AND METHODS

a. Biological material

In this study, human skin burns caused fortuity by hot utensil was used to evaluate effect of *Pistacia lentiscus L.* fruit's oil witch purchased from the region of El Milia (East of Algeria).

b. Skin treatment

Skin was treated on surface with *Pistacia lentiscusL.* fruit's oil without dilution. 1ml of oil was put on sterile compress and applied directly on burn. After each time, the diameter wound area and blister diameter were measured and morphological appearance photographed until complete epithelialization of wound.

The diameters were employed to calculate the percentage of wound contraction (PWC), using the following equation (Boulebdia et al., 2009):

$$\% \text{ wound contraction} = \left[\frac{\text{wound size}_x}{\text{wound size}_0} \right] \times 100$$

Wound size₀ = Initial wound size

Wound size_x = Specific day wound size

Taking initial size of wound 1.6cm and initial size of blister 1.2cm as 100% respectively.

RESULTS AND DISCUSSION

For a period of 9 days, different steps of burn healing were followed and assessed by morphological evaluation of the wound at different times intervals (table 1). Contraction of wound was measured and results were expressed as percentage wound contraction (P.W.C.) and shown on figure 1.

From the first day, the effect of the oil was observed (table 1) one hour after application of the sterile compress: trace the wound, blistering liquid was delineated and inflammation became more visible.

1.6cm was the diameter of the wound measured at day 1 time 6pm, it remained stable until 4th day, where it reached 1.4cm, this latest is then remained stable until cicatrization.

The blister has lost its liquid on the evening of the second day, the application of oil, helps to rapid drying and detachment of dead skin.

The dead skin of the blister started to get unstuck significantly the 6th day of treatment and disappeared completely on the 8th day.

Through the three first days, no significant wound healing effect was observed. From 4th to 5th day 12.50% of wound contraction was noted, 25% in 6th and 37.5% from 7th day to end of treatment. The blister showed about, 17% of PWC from the 7th day of treatment.












Boulebda et al., (2009) reported that that healing potentiating effect of *Pistacia lentiscus* L. fruit's oily unsaponifiable fractions was observed in period from 6 to 18 days after wounding in the case of adult male albino Wistar rats treated, with (30.4±8.5)% of wound contraction at day 10.

In the case of New Zealand white rabbit treated with *Pistacia lentiscus* fatty oil and adult male New Zealand rabbits treated with *Pistacia lentiscus* virgin fatty oil, Djerrou et al., (2013, 2010) demonstrated that wound contraction was stimulated and epithelialization period was significantly shortened (30±3.94 days) and percentage of wound contraction at day 12 was (62.3±14.4).

Maameri et al., (2012) also, demonstrated that the treatment of the same rabbits burns with *Pistacia lentiscus* L. oil showed better wound contraction than those treated with honey, with (46.13±3.12)% of wound contraction at day 10.

Morphological evaluation indicates different color of wound during treatment (table 1) the application of *Pistacia lentiscus* L. fruit's oil has allowed to darken the color of the burn. On day 1 the color was pinkish turned red on the second day to red-purple until the fourth day, finally to brown on the fifth day until the disappearance of dead skin. These series of events of changes encompass the repair of wound, through the presence and actions of activated platelets, neutrophils and macrophages (Ghosh and Gaba, 2013).

Table 1: Different aspects of wound during treatment

Days	Time				
	8am	1pm	6pm	7pm	10pm
1 st day					
2 nd day				WithoutOil	
3 rd day				WithoutOil	

4th day		Without Oil	
5th day		With Oil	
6th day			Without Oil

7th day			WithoutOil	
8th day	WithoutOil			
9th day	WithoutOil		WithoutOil	

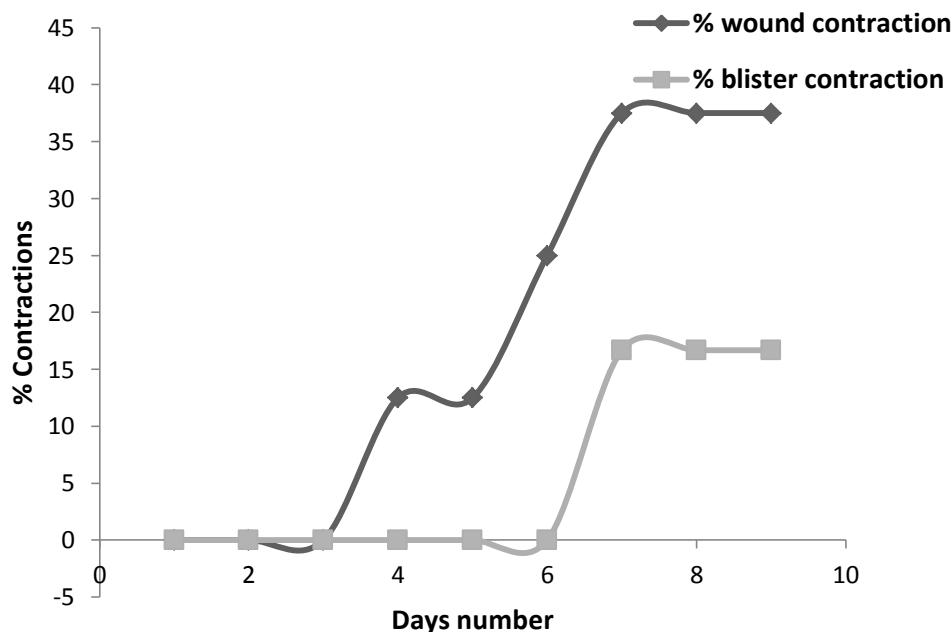


Figure 1. Evolution of the percentage wound contraction in treated skin

CONCLUSION

Pistacia lentiscus L. fruit's oil is determined as a good healing agent in different wound healing process, this study confirm it by percentage of wound contraction and morphological evaluation of the wound during 9 days. Wound healing is complex and regulated process, remodeling skin is facilitated by this oil. Monitoring of wound healing skin burn showed a good Wound healing despite the complexity of process. *Pistacia lentiscus* fruits oil stimulates and facilitates the remodeling and maturation of wound through its rich chemical constituents.

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