

Burns healing and anti-acne activity study of a lavender essential oil emulsion using Image processing and survey

A. Toubane¹ and K. Daoud¹

¹Team of. Pharmaceutical process, Laboratory of transfer phenomena, Department of environment process, Faculty of mechanical and process engineering, University of Science and Technology Houari Boumediene, Algiers, Algeria

Abstract: Medicinal plants are used empirically as remedies against several diseases; one of them is skin disorders. Acne and burns are recurring problems for human skin. In order to treat these skin conditions, emulsions provide an effective mean of delivering the active ingredient directly to the required area, the effectiveness of such formulation have to be evaluate by using clinical trials especially when the active ingredient is a natural product.

The aim of this work was to test the effectiveness of an emulsion based on true lavender essential oil.

Keywords: Anti-inflammatory, burns, acne, clinical trial, emulsion, image processing

I- Introduction :

The use of natural active ingredients for skin disorders healing has gained a lot of interest during the last decades, the efficiency of these treatments has to be proved using in vivo tests but also clinical trials. A new method to quantify the efficiency is to use artificial intelligence such as image processing software to evaluate the therapeutic effect.

II- Matériels et méthode:

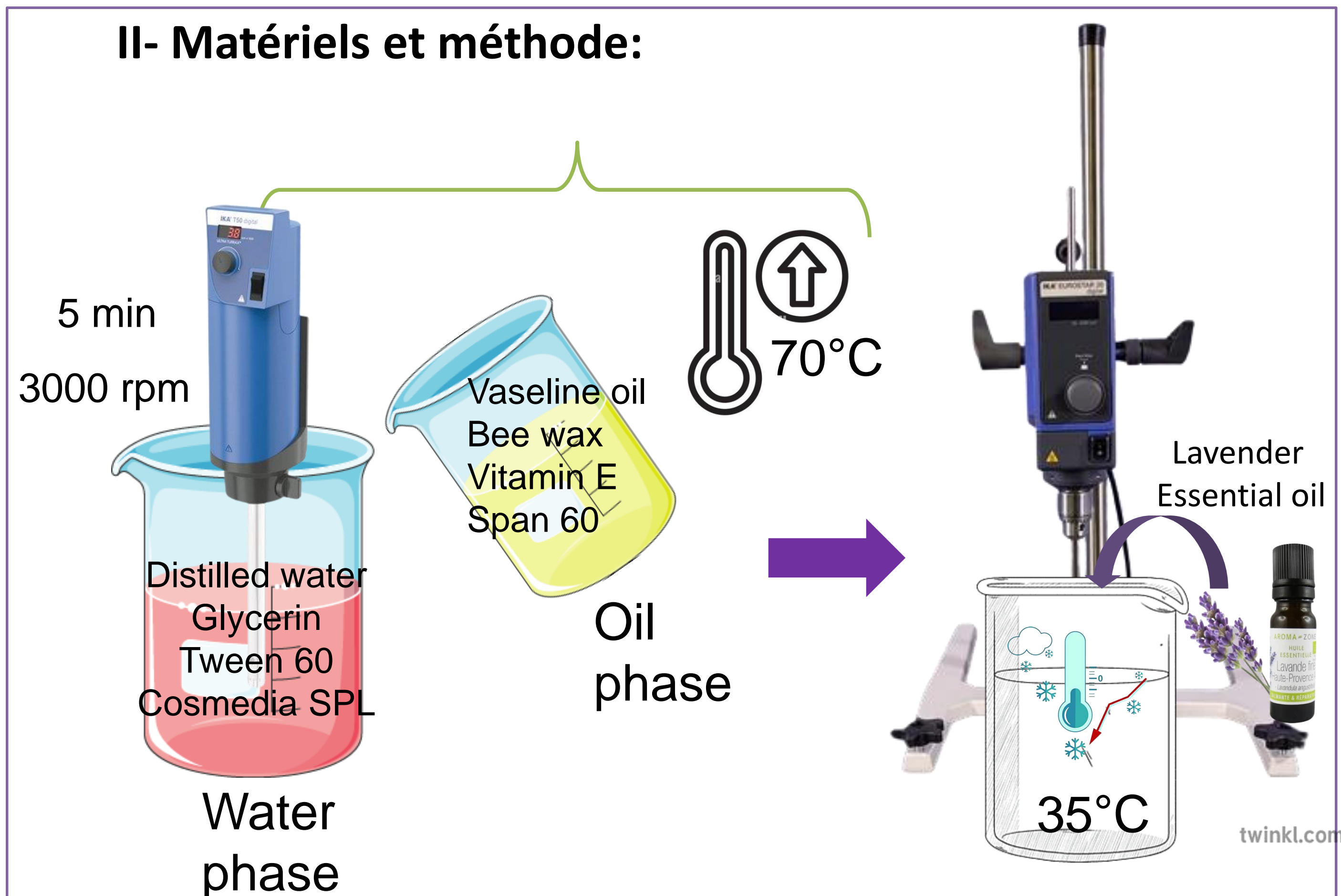


Figure 1: Emulsification process



Figure 2: Clinical trial



III- Résultats et discussion:

Acne



Figure 3: Picture of the first day (a) and day ten (b) of treatment (Person 2)

Table 1: Healing percentage (obtained by Image J) for the second person of the panel after 10 days of the treatment

Day	Healing percentage (%)
2	73,66
3	74,46
4	80,05
5	83,28
6	86,120
7	83,26
8	83,63
9	82,97

82%-95%
Acne
healing

Burn



Figure 4: Picture of the first day (a) and day ten (b) of treatment (Person 12)

Table 2: Healing percentage (obtained by Image J) for the person 12 of the panel after 10 days of the treatment

Day	Healing percentage (%)
2	1.43
4	7.78
5	39.70
6	42.75
8	39.85
9	54.07
10	58.13

46%-84%
Burns
healing

Survey

100% efficient
100% anti-inflammatory effect
83% moisturizing effect
89% anti acne effect

Conclusion:

The use of an image processing software to evaluate the healing percentage and then to traduce it into histograms allowed to quantify the efficiency of the emulsion. The survey have shown that the formulated emulsion had a great efficiency for burns and acne healing; this is due to true lavender essential oil action known for its anti-inflammatory and healing properties.