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Treatment of Two Cases of Tinea capitis by *Euphorbia paralias* Matrix (Case Study)

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Tinea capitis is a fungal infection of the head which is characterized by hair loss and may leads to alopecia. Two male patients with Tinea capitis were treated *in vivo* successfully by using the matrix of the plant species *Euphorbia paralias* by applying the matrix either once a day for 7 days (patient 1) or twice a day for one month (patient 2). Complete recovery with hair repaired was observed after two months and one month for the patients 1 and 2 respectively. From this study we concluded that *Euphorbia paralias* matrix has potent antifungal activity that is capable of curing Dermatophytic infection *in vivo*. The appropriate way of treatment is by applying the matrix twice a day for at least a month.

Keyword: *Euphorbia paralias*, Tinea capitis, Antifungal agent and Dermatophytic infection.

1. Introduction

Herbal medicine used to be the best alternative, as most antimicrobial agents were highly toxic and resistance development is in an increasing sequence. For the last few years most of the research work concentrated on producing new microbial active agent (highly potent with low toxicity), this fact allows the scientists to investigate many plants for their effects against bacteria, fungi, protozoa and viruses. The most commonly studied plant is *Euphorbia species*, a group comprises more than 2000 species spread worldwide[1]. Several antimicrobial agents were extracted and tested from the matrix and leaf of these species, and many manuscript were published testing the *in vitro* effects of this plants against bacteria[2,3], viruses[2,4,5], and fungi[2,3,6]. Also other researchers described the effects of the plant on cancer and cellular immune response[2,3,7,8]. In addition to good effects against snails and insects by the plants *Euphorbia paralias* were observed[2]. The most important antimicrobial agents extracted from this plant were Triterpenes and diterpenes which have effective antibacterial, antifungal and antiviral agents[2,9].

Tinea capitis is superficial Dermatophytic infection which affects scalp hair and characterized by crusts form on the scalp, with associated hair loss. The most common causes of the disease are *M. canis; M.*

gypseum; T. equinum; T. verrucosum; T. tonsurans; T. violaceum; and *T. schoenleinii* [10]. The disease is always chronic, difficult to be treated or requires long term medication, and susceptible to have super-infection with bacterial agents. Patients with such disease feel sad due to their outlook defects[10].

1.1 Case Report:

- **Patient (1):** A 25 year old military trainee patient suffering from Tinea capitis (diagnosed clinically) 6 months before starting the treatment. He said his first appearance of the disease started when he was in military camp in June 2011.The patient contacted a private dermatologist who prescribed him an antifungal agent, but the patient refuseed to take the medication.
- **Patient (2):** A 21 year old, Libyan, male student who suffered from Tinea capitis (diagnosed clinically) one and half year before starting the treatment. The patient contacts a private dermatologist and received an antifungal agent but no response was observed even after completing the course.

The patients were healthy and have no other diseases or any immunological problems and both of them were from the same city (Al-khoms City - Libya).

1.2 Ethical Approval:

The patients have signed a written consent and approved to participate in this study.

1.3 Treatment:

- **Patient No.1:** Small portion (about 1 gm) of the *Euphorbia paralias* (figure one) matrix was applied daily on the affected area for a week.
- **Patient No.2:** Small portion (about 1 gm) of the *Euphorbia paralias* matrix was applied twice a day on the affected area for a month.

2. Results:

The patients showed recovery with complete hair growth after receiving the treatment. Patient one was completely recovered with complete hair growth after 2 months of starting the treatment (figure two). Patient two has completely recovered with hair growth after a month of starting the treatment.

Figure 1: *Euphorbia paralias* plant

Fig 2: Patient No. 1: A. Before treatment. **B.** Ten days after starting the treatment. **C.** One month after starting the treatment.

3. Discussion

Infection caused by Dermatophytes is chronic with low recovery rate. Long term treatment is necessary even after disappearance of the symptoms as the spores may germinate again and cause relapses[10]. According to the information gained from the patient one, he may suffered with insufficient dietary food and temporary immune defects due to harsh military training and malnutrition which would leads to the reappearance of the disease. Humid climate and the location of Libya near the White Mediterranean Sea (residence area for the patients) may also play a role in spreading the infection.

Successful treatment of Tinea capitis was observed by using *Euphorbia paralias* matrix in the patients; this indicates good antifungal activity of this plant, which demonstrated *in vitro* by Mwine *et al* and Giordani *et al*[2,6]. Patient two showed rapid recovery rate when the plant matrix was applied twice a day for amonth, this result suggests the appropriate way of treatment (twice/day for at least one month).

As the matrix applied externally, there may be no need to worry about the side effects of the medication. This also suggests that *Euphorbia paralias* matrix is highly effective and safe antifungal agent.

4. Conclusion and Recommendation:

Based on this study we concluded that *Euphorbia paralias* matrix has potent antifungal activity that is capable of treating Dermatophytic infection *in vivo*. The recommended way of treatment is by applying the matrix twice a day for at least one month. We recommend further study *in vitro* and *in vivo* for the effects and side effect of the target plant matrix.

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