

Isolation, Identification and Measurement of Cottonseed Oil Gossypol in the Treatment of Drug-Resistant Cutaneous Leishmaniasis

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Abstract : Leishmaniasis is one of the 10 most important diseases of the World Health Organization with health problems in more than 90 countries. Over one billion people are at risk of these diseases on almost every continent. The present human study was performed to evaluate the therapeutic effect of cotton plant on cutaneous leishmaniasis lesion. firstly, the cotton seeds were cleaned and grinded to smaller particles. In the second step, the seeds were oiled by cold press method. In order to separate bioactive compound, after saponification of the oil, its gossypol was hydrolyzed and crystallized. finally, the therapeutic effect of Cottonseed Oil on cutaneous leishmaniasis was investigated. In the current project, Gossypol was extracted with a liquid-liquid extraction method in 120 minutes in the presence of Phosphoric acid from the cotton seed oil of Golestan beach varieties, then got crystallized in darkness using Acetic acid and isolated as Gossypol Acetic acid. The efficiency of the extracted crystal was obtained at 1.28 ± 0.12 . the cotton plant could be efficient in the treatment of Cutaneous leishmaniasis. This double-blind randomized controlled clinical trial was performed on 88 cases of leishmaniasis wounds. Patients were randomly divided into two groups of 44 cases. two groups received conventional treatment. In addition to the usual treatment (glucantime), the first group received cottonseed oil and the control group received placebo. The results of the present study showed that the surface of lesion before the intervention and in the first to fourth weeks after the intervention was not significantly different between the two groups (P -value > 0.05). But the surface of lesion in the Intervention group in the eighth and twelfth weeks was lower than the control group (P -value < 0.05). This study showed that the improvement of leishmaniasis lesion using topical cotton plant mark in the eighth and twelfth weeks after the intervention was significantly more than the control group. Considering the most common chemical drugs for Cutaneous leishmaniasis treatment are sodium stibogluconate, and meglumine antimonate, which not only have relatively many side effects, but also some species of the Leishmania genus have become resistant to them. Therefore, a plant base bioactive compound such as cottonseed oil can be useful with fewer side effects.

Keywords : cottonseed oil, crystallization, gossypol, leishmaniasis

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