

## Gossypol Extraction from Cotton Seed and Evaluation of Cotton Seed and Boll-cotton-pol Extract on Treatment of Cutaneous Leishmaniasis Resistant to Drugs

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**Abstract :** Gossypol is a yellow anti-nutritional compound found in the cotton plant. This substance exists in the cottonseed and other parts of the cotton plant, such as bark, leaves, and stems. Chemically, gossypol is a very active polyphenolic aldehyde compound, and due to this polyphenolic structure, it has antioxidant and therapeutic properties. On the other hand, this compound, especially in free form, has many toxic effects, that its excessive consumption can be very dangerous for humans and animals. In this study, gossypol was extracted as a derivative compound of gossypol acetic acid from cottonseed using the n-hexane solvent with an efficiency of  $0.84 \pm 0.04$ , which compared to the Gossypol extracted from cottonseed oil with the same method (cold press) showed a significant difference with its efficiency of  $1.14 \pm 0.06$ . Therefore, it can be suggested to use cottonseed oil to extract this valuable compound. In the other part of this research, cottonseed extracts and cotton bolls extracts were obtained by two methods of soaking and Soxhlet with hydroalcoholic solvent taken with a ratio of (25:75), then by using extracts and corn starch powder, four herbal medicine code was created and after receiving the code of ethics (IR.SSU.REC.1398.136) the therapeutic effect of each one on the Cutaneous leishmaniasis resistant to drugs (caused by the leishmaniasis parasite) was investigated in real patients and its results was compared with the common drug glucantime (local ampoule) (n = 36). Statistical studies showed that the use of herbal medicines prepared with cottonseed extract and cotton bolls extract has a significant positive effect on the treatment of the disease's wounds (p-value > 0.05) compared to the control group (only ethanol). Also, by comparing the average diameter of the wounds after a two-month treatment period, no significant difference was found between the use of ointment containing extracts and local glucantime ampoules (p-value < 0.05). Bolls extract extracted with the Soxhlet method showed the best therapeutic effects, although there was no significant difference between them (p-value < 0.05). Therefore, there is acceptable reliability to recommend this medicine for the treatment of Cutaneous leishmaniasis resistant to drugs without the side effects of the chemical drug glucantime and the pain of injecting the ampoule.

**Keywords :** cottonseed oil, gossypol, cotton boll, cutaneous leishmaniasis

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