Evaluation of Wound Healing Property of Cassia Tora

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Abstract: \textbf{Aim:} This research work aims to study the wound healing property of methanolic extract of Cassiatora seeds on albino mice. \textbf{Method:} The research was carried out in selected Swiss albino mice that were treated with seeds extracted from Cassiatora extract and compared with standard drug Povidine iodine. \textbf{Result:} The result showed very good wound healing property of Cassiatora when compared with the standard drug Povidine iodine. \textbf{Conclusion:} It is concluded that Cassiatora has significant wound healing activity.

Keywords: Albino mice, Cassiatora, wound healing property

1. Introduction

The plant \textit{Cassiatora} is an annual foetid herb with moderate size belonging to the family Fabacaeae. It is mainly found in the State of Uttar Pradesh and Madhya Pradesh in India. The plant has many medicinal properties. \textit{Cassia tora} is used as a coffee substitute. It is very useful in treating skin diseases like ringworm, itching or body scratch and psoriasis. Its fresh leaves are used externally to treat eczema and dermatomycosis. Decoction of fruit of \textit{Cassiatora} is used inter alia in treatment of fever. \textit{Cassiatora} acts as a nerve tonic as a liver stimulant and hard tonic (Lajuruset al., 1994). It is aperients germicide, mucilaginous and laxative.

A review of literature (Janghel et al., 2012) revealed that the wound healing property of methanolic extract of Cassia tora are studied by excision and incision. Wound models on albino mice exhibited significant wound healing activity.

2. Material and Method

Animals

\textit{Swissalbino} mice weighing about 20-30 gm with no prior drug treatment were obtained from the animal house, Deptt of Research, Jawaharlal Nehru Cancer Hospital and Research Centre, Bhopal. Experimental animals were housed in separate cages and fed with standard diet and water \textit{ad libitum} throughout the study. Ethical approval was obtained from Institutional Ethical Board Committee and the registration number is CPCSEA/a/500/2001.

Grouping of Animals

3-4 months mice were used for experiment, 12 mice were used for experiments which were divided into 3 groups. Each group contains 4 animals:

1) Normal standard group - 4 animals (NST)
2) Treated group-4 animals (TT)
3) Normal group- 4 animals (NC)

Plant material:

Seeds of \textit{Cassiatora} were collected from the herbal garden of Jawaharlal Nehru Cancer Hospital & Research Centre, Bhopal.

Extraction:

25 g of \textit{C. Tora} was dissolved in 300 ml methanol for 72 hours. Further subjected to maceration, soaked seeds were macerated and defatting was done using 200 ml petroleum ether. Finally, 3.10 gm of crude extracts were extracted and tested for wound healing activity.

Methodology:

The wound was created by excision method. For this, first of all hair was removed from the anterior and posterior sites of mice using hair removal Anne French (made in India) Geoffrey Manners and an area of 1x1 cm was measured with stencils and this area was marked with a marker. The anterior and posterior marked area was anesthetized using alocal anaesthesia Xylocaine. After 2 minutes of applying Xylocaine, the marked area of the skin was excised with the help of surgical blade no. 18 and toothed forceps. The skin was removed creating the wound of 1x1 cm. The treatment was given on every alternate date:

1) Drug (Povidine Iodine) 0.5 mg was applied in group NST every alternate days.
2) Drug ((seed extract) 0.5 mg was applied in group TT every alternate days.
3) No drug was given to group NC.

3. Observation and Result

There was noticeable homogeneity in wound contraction observed for animals in experiment group (TT) compared to control group (NST, NC) as given in Figure 1 and Graph No 1.

The mean value of wound contraction of anterior site of control and experiment group was taken as 5\textsuperscript{th}, 10\textsuperscript{th}, 15\textsuperscript{th} and 20\textsuperscript{th} day. Wound re-epithelization has been observed by both physical and mechanical measurement by Vernier Calliper (Fisher Scientific). The mean value of wound contraction for NC group was 0.87455 at 5\textsuperscript{th} day, 0.2305 at 15\textsuperscript{th} day and 0.1520 at 20\textsuperscript{th} day. Mean value of treated group was found to be 0.56 at 5\textsuperscript{th} day, 0.055 at 15\textsuperscript{th} day and 0 at 20\textsuperscript{th} day. The Figures below show the better healing at 15\textsuperscript{th} day with \textit{Cassia tora} when compared to standard drug Povidine Iodine.
4. Discussion and Conclusion

Wound repair can easily be understood by non-invasive method for measurement like physical observation and mechanical measurement, however, wound density, collaginase activity etc. Can be added to make more scientific validation for the present work; however, this piece of work is performed only in 25 days; however, molecular dimension cannot be studied.

The present study is a comparative study between the wound repair mechanism by standard drug (Povidine iodine) and test drug (Cassia tora). It was observed that the wound is repaired significantly in the test and standard group when compared with the normal control without any treatment. It was also noticeable that the wound is repaired significantly (p<0.0001) when test group alone compared with standard drug and control. The present study has been separated by Janghel V. et al., (2012), however, the value in moderately significant (p<0.01) this may be due to the sample origin of different ecotype.

According to the Table No 1 it was found that control (without any treatment) has shown poor re-epithelization. However, treated mice has shown total repair at 20th day. Thus Cassia tora has shown great potential in wound healing activity.

5. Acknowledgement

We are thankful to the Management of JNCH&RC, Idgah Hills, Bhopal, for providing us with the necessary facilities to carry out this research work and would like to acknowledge our deep sense of gratitude for the same.

Table 1: Comparison between wound (in cm²) healing activity of Cassiatora seeds with Povidine iodine

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Legends: NC: Normal control, NST: Normal Standard Treated, TT: Seed treated

Graph 1: Comparison between wound (in cm²) healing activity of Cassia tora seeds with Povidine iodine

Legends: NC: Normal control, NST: Normal Standard Treated, TT: Seed treated

Figures showing wound on Normal Control and Treated groups of Swiss albino mice at Day zero and Day 15
References


