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## WOUND HEALING ACTIVITY OF THE PLANT OF *BALIOSPERMUM MONTANUM* WILLD.

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### ABSTRACT

#### Keywords:

*Baliospermum montanum*,  
Wound healing activity,  
Solvent extraction,  
Ointment

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The plant of *Baliospermum montanum* (Willd.) was shaded dried, and then these were made into coarsely powdered by using dry grinder. The powdered roots of the plant (200gm) was packed in soxhlet apparatus and continuously extracted with petroleum ether (40-60<sup>0</sup>C) till complete extraction. After completion of extraction, the solvent was removed by distillation and then concentrated extract obtained was dried under reduced pressure using rotatory evaporator at temperature not exceeding 40<sup>0</sup>C and then moderate heating on water bath. A dark brown extract approximate 2 gm. was obtained. From the drug petroleum ether was removed and the defatted drug was extracted with ethanol (95%) till complete extraction, after completion of extraction the solvent was removed by distillation and then concentrated extract obtained dried under reduced pressure at temperature not exceeding 40<sup>0</sup>C and then give moderate heating on water bath. The ethanol extract obtained was dark brown in color weighed about 18gm. The ethanolic extract was kept in petri dish and it was stored in desiccators at cool place.

**INTRODUCTION:** In the traditional systems of medicine, the plant of *Baliospermum montanum* (Willd) belonging to Euphorbiace family commonly called Danti are used in headache and respiratory tract<sup>1</sup>. The plant roots have also shown to possess hepatoprotective and analgesic activity. One of the main constituents of the plant of *Baliospermum montanum* is flavanoids. The free flavanoids present in plant of *Baliospermum montanum* have been reported to have prohealing activity<sup>2</sup>. In view of these has been designed the present work to study the possible effect of different extracts of the plant of *Baliospermum montanum* on wound healing process. An ointment prepared from the plant is cure wounds and ulcer. A survey of literature revealed that the plant of *Baliospermum montanum* has not been scientifically investigated for its wound healing activity<sup>3</sup>.

The traditional medicine system is holistic in that its application usually covers the mind, body and soul<sup>4</sup>. The concept includes mystical and magical rituals, herbal therapy, psychiatry and other treatments, which may not be explained by modern medicine<sup>5</sup>. Studies suggest that this therapy is applied to conditions such as cancer, arthritis, chronic back pain, gastrointestinal problems, chronic renal failure, eating disorder, physical, mental or social disease and so on. Herbal medicine is currently enjoying a revival in popularity in the west and in fact it is the primary form of medicine in many parts of the world<sup>6</sup>.

With the great reliance on this type of medicine, it becomes pertinent to search for potent, effective and relatively safe plant medicines as well as scientific validation of the success claims about plants already in use by traditional medicine practitioners in order to enhance their safety and efficacy<sup>6</sup>. These are some of the problems making this alternative healthcare system less acceptable, especially by orthodox medicine practitioners<sup>7</sup>. Although many Traditional Medicines or

Complementary Alternative Medicine (TM/CAM) therapies have promising potential, and are increasingly used, many of them are untested and their use is not monitored<sup>8</sup>. As a result, knowledge of their potential side effects is limited<sup>9</sup>. This makes identification of the safest and most effective therapies and promotion of their rational use more difficult<sup>10</sup>.

## **MATERIAL & METHODS:**

**Plant Material:** *Baliospermum montanum* was collected from Barabanki District U.P. in the month of September 2009 and were authenticated by Dr. Tariq Husain (Head & Scientist Herbarium), National Botanical Research Institute, Lucknow with accession no. 97306.

**Animals:** Albino rats (Either six) procured from the disease free animal house, Institute of Pharmacy Bundelkhand University, Jhansi with reference no of BU/PHARM /IAFC/09/002. The rats were fed a standard diet and water. A group of six rats (150-200g) each were used in all set of experiments<sup>4</sup>.

**Preparation of Extract:** In the present study the plant of *Baliospermum montanum* (Willd) were dried and shade around 900g were reduced to powder and was subjected to hot continuous extraction in soxhlet extractor successively with petroleum ether and ethanol (95%). Each extract was the concentrated by distilling of the solvent and then evaporated to dryness on water bath. All the extracts were kept in desiccators and stored in a refrigerator for chemical and pharmacological studies<sup>5</sup>.

## **Pharmacological screening:**

**Wound healing studies:** Albino rats of either six weighing (150-200 g) were selected and divided into four group of six each. Animal were depilated at the desired site before wounding. They were housed individually with free access to food and water the

basal food intake and body weights to nearest gram were noted the animal were staved for 12 hours prior to wounding under light anesthesia sterilizing the area with ethanol performed wounding. The first group of control and given the vehicle (Gum Acacia 5%) orally. Third and fourth group of animal give ethanolic and petroleum ether extract by oral route and compared with second group standard drug i.e. 0.2% Furamycetin ointment.

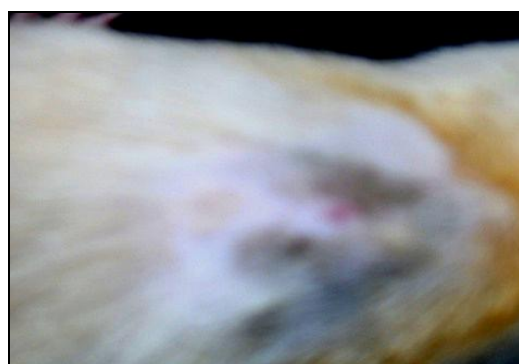
### Wound model:

**Excision wound:** In this model four groups of animal and containing at least six in one group are

**TABLE NO 1: EFFECT OF *BALIOSPERMUM MONTANUM* PLANT EXTRACTS ON PERCENTAGE CLOSURE OF EXCISION WOUND AREA (sq. m.  $\pm$  SEM)**

Group (N)	4 <sup>th</sup> day	8 <sup>th</sup> day	12 <sup>th</sup> day	16 <sup>th</sup> day
Control	0 $\pm$ 0	25 $\pm$ 0.493	47.5 $\pm$ 0.352	82.4 $\pm$ 0.401
Furamycetine	17.5 $\pm$ 0.155	35 $\pm$ 0.865	62.5 $\pm$ 0.395	97.5 $\pm$ 0.597
Ethanolic ext.	0 $\pm$ 0	30 $\pm$ 0.309	57.5 $\pm$ 0.378	92.5 $\pm$ 0.575
Pet ether ext.	0 $\pm$ 0	27.5 $\pm$ 0.273	47.5 $\pm$ 0.355	90 $\pm$ 0.470

anaesthetized with anaesthetic ether, rats are depilated on back; one excision is inflicted of 500 mm<sup>2</sup> full thickness of skin of pre determined area <sup>11</sup>. Rats are undressed to the open environment then the drug i.e. the standard drug 0.2% furamycetine ointment. Control and test drug ointment and other forms of drug are administrated till the wound is completely healed this model is used to monitor wound contraction and epithilization time. The observations of percentage wound closure were made on 4<sup>th</sup>, 8<sup>th</sup>, 12<sup>th</sup>, 16<sup>th</sup> days post wound day and also for epithilization and size of scar area <sup>12</sup> (table 1).



INITIAL STAGE



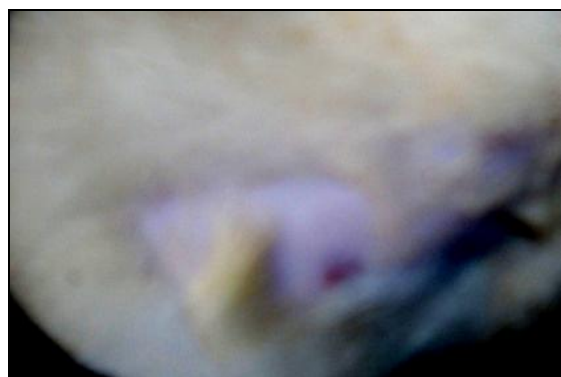
ETHANOLIC EXTRACT



STANDARD DRUG



PET. EXTRACT



CONTROL

FIG. 1: FIGURES OF WOUND HEALING ACTIVITY

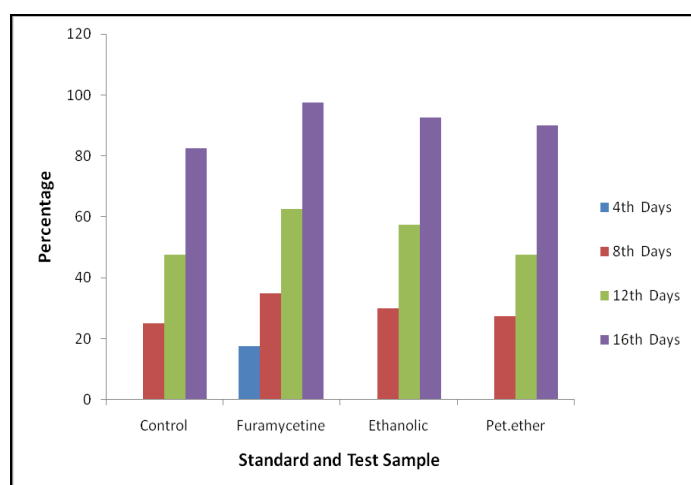


FIG. 2: GRAPHICAL PRESENTATION OF PERCENTAGE EFFECT OF STANDARD AND TEST SAMPLE IN WOUND HEALING ACTIVITY

**RESULT & DISCUSSION:** The effect of ethanolic and petroleum ether extracts of *Baliospermum montanum* were screened on excision wound model with the control and reference standard furomycetine treated animal. The epithilization of excision wound was observed in 4<sup>th</sup>, 8<sup>th</sup>, 12<sup>th</sup> and 16<sup>th</sup> day in table. The petroleum ether extract

showed significant wound healing activity but the effect more pronounced in ethanolic extract treated animal. The complete epithilization of excision wound was observed in furamycetin treated animal noticed on 17<sup>th</sup> day while in petroleum ether extract animal treated epithilization was delay by 20 day and ethanolic extract treated animal complete epithilization was delay by 18 day. In control animal the duration of epithilization was extend up to 25 days.

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