

**EVALUATION OF THE EFFECTIVENESS OF *Matricaria
achamomilla* AQUEOUS EXTRACT ON THE WOUND HEALING
IN THE LOCAL HORSES**

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ABSTRACT

In the latest years, the look for natural compounds which excites tissue repair has gained high significance. So, the current study reviewed the efficacy of Chamomile (*Matricaria Chamomilla* aqueous extract) for cure of wounds in the neckline region. (15) of local horses divided into five groups randomly (Four of them were considered as a Chamomile aqueous extract 5%, 10%, 15%, 20% separately and the fifth one was considered the control group). They were introduced to dermal wounds in the neckline region (3 wounds / each horse). These natural wounds were dressed daily with Chamomile aqueous extract for 3 weeks (but the control group) was treated with distilled water only. Clinical wounds characteristics were taken after Chamomile aqueous extract treatment proved very good with the acceleration of Chamomile aqueous concentration. They showed marked reduction in wound dimensions and formation of healthy scars.

The clinical indications of every cut were recorded daily. The results showed the superiority of the watery concentrate arrangement at 20% concentration because of the clinical indications of the wounds (swollen, bleeding, dryness, abscess formation, epithelization and scar tissue formation). The aqueous extract solution with its distinctive concentration demonstrated bit by bit nonattendance of wounds edges swollen, no bleeding, dryness, severe development of epithelial tissue, no abscess and scar tissue formation since the first week of the treatment.



INTRODUCTION

Injury curing composes a superbly planned course of cellular and molecular occasions that cooperate so as to advance restoration of the tissue (1). Different creators were examined medicines that may quicken injury curative, decrease sore indications connected by wounds and include perfect money saving advantage proportion (2). Inquire about on medications that expansion cut mending is a creating zone within advanced biomedical sciences. A few medications acquired as of plant origins are documented to raise recovering of various sorts of injuries (3). Herbal medicine has transformed into a crucial piece of standard healthcare, based on a combination of time regarded conventional utilization and continuing scientific research (4). Skin wound recovering is an unpredictable and well-organized process including an arrangement of continuous and overlapping events involving inflammation, wound restoration of epithelium formation and cutaneous restructuring, wound constriction and rebuilding (5). The hunt for natural compounds to excite tissue repair has picked up significance in the late years pointing improvement of non-toxic formulations for wound treatment because of their simple implementation, low cost and bactericidal / bacteriostatic effect (6). Various strategies and information was utilized to examine the impact of chamomile on tissue restoration in animals. Chamomile, otherwise called *Matricaria Chamomilla*, of the Asteraceae (Compositae) family, is one of the tea components most utilized around the world (7). Asteraceae is a famous Chamomile plant which was utilized for quite a long time, particularly in view of its anti-inflammatory, disinfectant, spasmolytic and narcotic results (8). The principle chemical ingredients of the Chamomile flora incorporate a few benzenolic composites, mostly the bioflavonoids apigenin, Hesperidin, patuletin, luteolin and their glucosides, terpenoids alpha-bisabolol and its oxides and azulenes, main involving chamazulene (9). Anti-inflammatory, germicide and antioxidant medicaments are great decisions to the management of wound (10). There are little investigations in the domain of examination of effects of chamomile on wound healing. In this way,, the current study has been proposed to assess the impact of treatment of wounds with chamomile aqueous extract solution in several concentrations.



MATERIALS AND METHODS

Fifteen adult local horses were used as a part of the current study, during the period (1-30) of March 2015. Aging 4-10 years, were housed in individual pens with controlled light, temperature and dampness. They were fed commercial feed and water *adlibitum*. The fifteen horses were haphazardly separated into five equivalent groups (3 horses in each group) depending on Chamomile extract concentration as following: group 1 (5%), group 2 (10%), group 3 (15%), group 4 (20%) and group 5 which applied distal water on the wounds was a control group. All experimental horses are incised (10 cm) in the neckline area (3 wounds / each horse) as the surgical protocol and injected with 3000 IU of Antitetanus after that. Each open wound (except for the group 5) was treated with various concentrations of Chamomile aqueous extract as outlined for every group directly and then daily. *Matricaria Chamomilla* flowers were peeled off and washed. A 40 gm of Chamomile were taken with 100 ml of water and homogenized by a blender for two minutes. Then, transferred to a volumetric flask, where 200 ml of water added and stirred magnetically over night at 45°C, and after 24 hours the residue were removed by filtration for 2-3 times (11). In the study group treated with Chamomile extract illustrated the skin was removed and then put extract. The wounds were clinically examined daily for color exudation and general appearance. In the study groups treated with Chamomile, the amount was utilized in the site of the wound, topically in once in all treated groups, should be loose skin were excised. This study confirmed that a watery concentrate of Chamomile blossoms had characteristics that allow it enable to promote accelerated wound healing activity compared with the control group, wound contraction, increased tensile strength activity in the local treatment and organization of wounds.

RESULTS

Table one, was demonstrated the results of the current study. At the first week the swelling of wounds was clear especially in the (5%) group and to a lower degree in the (10%) group. However both of (15% and 20%) treated groups didn't illustrate any



swelling in their wounds. The consequence of swelling in the 2nd and 3rd weeks from the earliest starting point of the study has been revealed same observation, absent of swelling in (10%, 15% and 20%), and while swelling wounds in control groups step-by-step diminished in with advancing of examination weeks. Bleeding of wounds had been occurring in the first seven days of the current study at (5%), (10%), (15%) and control group, but no bleeding was shown at (20%).

Treated horses in the 5% group were showed gradual increasing in dryness clinical sign, and progressed in dryness at (10% and 15%) groups with the advancement of the treatment weeks, while they revealed completely dryness from the first seven days at (20%). No dryness happened in the control group. No abscess formed in (15% and 20%) groups throughout the duration of the experiment; wounds of (10%) group didn't suffer from abscess formation in the second and third weeks of study, while decreasing of abscess formation in (5%) group and control group started gradually for the first week until completely absent in the third week. In the week 1 of study, epithelization happened in every treated group and not occurred in the control group. In the second week, epithelization reached a maximum level at (15% and 20%) groups in comparison with others, while at the last week of study; all groups showed epithelization, but the (10%, 15% and 20%) registered the extreme levels. Gradual scar formation in the wounds of control groups has seen, as seen at the 5% group in the first and second weeks and absent in the third week. While wound scarring in all other treated groups (10%, 15% and 20%) was absent at second and third weeks.



Table 1: clinical observations of the experimental wound, in relation to the duration and concentration

Duration	Clinical signs	Chamomile Extract concentrations				Control group (C)
		5%	10%	15%	20%	
1 week	Swollen	++	+	-	-	+++-
	Bleeding	+	+	+	-	++
	Dryness	-	++	++	+++	-
	Abscess formation	+++	++	-	-	+++
	Epithelialization	+	+	+	+	-
	Scar tissue formation	++	++	+	+	+++
2 week	Swollen	+	-	-	-	++
	Bleeding	-	-	-	-	-
	Dryness	+	++	+++	+++	-
	Abscess formation	+	-	-	-	++
	Epithelialization	+	++	+++	+++	+
	Scar tissue formation	+	-	-	-	++
3 week	Swollen	+	-	-	-	+
	Bleeding	-	-	-	-	-
	Dryness	++	+++	+++	+++	-
	Abscess formation	-	-	-	-	-
	Epithelialization	++	+++	+++	+++	++
	Scar tissue formation	-	-	-	-	+

+ Mild, ++ Moderate,+++ Severe (12)



DISCUSSION

Although there are very few researches about the impact of Chamomile on wound curing in horses, the results of this study show many scientific facts. Categorizing wounds of injured animals are more than purely academic exercise. Preoperative classification of a wound aids the surgeon to choose the most suitable treatment. Second intention healing is the only *satisfactory* choice for wounds to heal (13). However, the shape and the location of such wounds play a part in the mending procedure (14). In the current study it was easy to inflict and judge healing of such square wounds. Normally, any wound show swollen of its edges because of the destruction of tissue cells, blood vessels (hematoma and clot formation) and promoting of histamine release(15). Table one show that the swollen exist severely at seven days in the control group as well as 5% group while it is mild with 10%, 15% and 20% groups respectively due to its cool effect.

(16) Estimated the impacts of mortal organization of 120 mg/Kg of Matricaria chamomilla bloom extract within water suitable for drinking. They watched fast epithelialization, decreased injury measure, expanded number of fibroblasts and hydroxyproline content, a pointer of collagen turnover, and also diminished inflammation in the animals treated with chamomile bloom remove (17). In the current study, significant epithelialization and rate of collagen was connected with the utilization of chamomile following two weeks of topical treatment.

A few creators (18) noticed quickened mending of broad skin smolders, starting at the end of third week, in mice treated locally with chamomile in sweet oil. Study of (19) assessed the impacts of chamomile in 3-mm wide ulcers in rodent tongues, utilizing similar pharmaceutical appearance utilized as a part of current study and speed similar methodology.

The creators noticed that the group of animal treated with chamomile indicated whole ulcer enhancing on day 5, though creature treated with corticosteroids just achieved that phase of repair on last day of second week. Corticosteroids are generally utilized as a part of the local handling of blister and physical sores and, regardless of the course of management, can have unfavorable



systemic impacts (20).Accordingly, *in order to* dodge such unfavorable effects (furthermore because of minimal effort, simple get to, low poisonous quality and simple organization) some practitioners prefer to recommendherbal medicines for instance chamomile (21).

In spite of the positive results of chamomile treatment concerning tissue repair, the correct instrument of activity of the plant remains indistinct. We did not discover critical variations among the control and treatment groups in regards to the stage of inflammation and the extent of the wound. This is in conflict with the outcomes acquired by different creators, who noticed the calming impacts of Chamomile (22).

There was not a group which got placebo ointment in this study. Be that as it may, an examination (23) researched the recuperating of 0.5cm injuries of rat tongues treated with three various medicines (Propolis in propyleneglycol, triamcinolone acetonide in oromucosal paste and oromucosal paste). The creators, who utilized techniques like our own, and relinquish animals following three, seven or ten days, inferred that the control group (animals that did not get treatment) and the oromucosal paste group revealed a like healing pattern all through the 10-day experimental period (24). This affirms the nonappearance of placebo impact in this procedure and backs the theory that the pharmaceutical impacts noticed in the current study were because of the dynamic standards of chamomile, not to the physical insurance of the damage (25). In spite of the promising outcomes of studies in vitro and in vivo models, little studies have researched the impact of chamomile on tissue repair in people, regularly demonstrating disputable outcomes. Albeit a few creators have reported improvement of methotrexate-induced using of chamomile, Al-Refai (26) who examined 164 patients with 5-fluoracil-induced mucositis, found no critical contrasts among the groups treated by chamomile and the placebo group. With observe to the alleviation of painful indications of canker sores, the pain relieving impacts of the ointment utilized in the current study were viewed as great by 82% of the populace. It's worthwhile to mention that the results in table one show grossly very well wounds tension, especially with 20% concentration group because of the presence



of tannic acid as astringent material (27). Further studies investigating the effects of chamomile were judged to be statistically efficacious in producing wound drying and in speeding epithelialization, and fundamentally to top wound-breakage force (28). The utilization of chamomile extract as per to the methodology of the current study evaluated a re-epithelialization and formation of collagen fibers following 10 days of treatment; chamomile did not, however, influence the grade of inflammation, fibroblast count or wound size (29).

تقييم تأثير المستخلص المائي للبابونج الألماني على التئام الجروح في الخيول المحلية

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الخلاصة

في السنوات الأخيرة، اكتسب البحث عن المركبات الطبيعية التي تحفز إصلاح الأنسجة أهمية بالغة. لذلك، عرضت الدراسة الحالية فعالية البابونج (المستخلص المائي للبابونج الألماني) لعلاج الجروح في منطقة الرقبة. (15) رأساً من الخيول المحلية فسمت إلى خمس مجموعات بشكل عشوائي (اعتبرت أربع منها كمجاميع لمستخلص البابونج الألماني 5%، 10%، 15%، 20% على حدة واعتبرت الخامسة مجموعة سيطرة). وقد خضعت لجروح جلدية في منطقة العنق (3 جروح لكل حصان)، وعولمت هذه الجروح الطبيعية بمستخلص البابونج الألماني يومياً لمدة 3 أسابيع (ولكن مجموعة السيطرة) عولمت بالماء المقطر فقط. ان خصائص الجروح السريرية التي سجلت بعد العلاج بمستخلص البابونج المائي تحسنت بشكل جيد جداً مع زيادة تركيز البابونج المائي. فقد أظهرت انخفاضاً ملحوظاً في أبعاد الجروح وتكوين الندبات الصحية. تم تسجيل المؤشرات السريرية لكل قطع بشكل يومي. أظهرت النتائج تفوق نسبة التركيز المائي 20% بموجب المؤشرات السريرية للجروح (التورم، والنزيف، والجفاف، وتشكيل الخراج، والاندمال بتشكيل النسيج الظهاري وتكوين الندب). ان محلول المستخلص المائي بتركيزه المميز أوضح شيئاً فشيئاً اختفاء ورم حافات الجروح، وعدم وجود النزيف، والجفاف، والتطور الشديد للأنسجة الطلائية، وعدم وجود الخراج، وتشكيل النسيج الندبي منذ الأسبوع الأول للعلاج.

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