Bastar Ointment: A Promising Herbal Medicine in Dermatology

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Abstract

Introduction and Aim: Bastar ointment is a widely used medicinal product in the Tirana Highlands and beyond. It is composed of a blend of several herbs known for their medicinal properties, along with meat by-products. This precise combination results in an ointment that effectively treats various types of wounds, including burns, infected wounds, deep lacerations, and scratches.

The aim of this study is to investigate how this popular medicine influences the treatment of various wounds, referencing the research conducted by the respective authors for each plant.

Materials and Methods: A total of 513 cases were included in the study. Participants who responded to the questionnaire varied in age and had different types of wounds. Additionally, they were not exclusively from the Tirana highlands. The responses included information on the care provided, the duration of treatment, any combinations with other herbs, as well as any side effects or allergies experienced.

Results: The average time for wound healing is approximately 12 days, with burns accounting for 32% of the cases. Fortunately, no allergic reactions were observed, and the medication was administered twice daily in 63% of cases.

Conclusions: Bastar Ointment has demonstrated positive effects on wound healing, thereby confirming the pharmacological properties of this traditional folk

medicine. The findings indicate its anti-inflammatory, antimicrobial, antinociceptive, antioxidant, and anticarcinogenic effects, as well as its content of essential vitamins and beneficial fats. Given its diverse range of biological activities, Bastar Ointment can be regarded as a medicine with valuable and intriguing properties.

Key words: *Bastar Ointment, folk traditional medicine, various wounds, medicinal plants.*

Introduction

Traditional medicine encompasses "the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, used in maintaining health and in preventing, diagnosing, curing, or treating physical and mental illnesses" (World Health Organization, 2005). In addition to conventional wound care options, traditional medicine can also be utilized (Azimi et al., 2020).

Bastari Ointment is a traditional folk medicine that has been utilized in the Tirana Highlands since World War I. It is composed of a blend of several medicinal plants and meat by-products, which gives us medicine in the form of an effective ointment. The beneficial effects of these medicinal plants from the Balkan region for wound healing, as per traditional practices, have been substantiated by numerous scientific studies. The unique geographical and ecological characteristics of the Balkan Peninsula have fostered a remarkable diversity of medicinal plants. In the traditional culture of the Balkan peoples, including Albania, the diverse flora has demonstrated significant medical, economic, and anthropological/cultural importance. This is reflected in the extensive knowledge of their diversity and applications (Jarić et al., 2018). This folk medicine comprises a combination of several medicinal plants, with their therapeutic value stemming from various chemical compounds that exert physiological effects on the human body, leading to positive health outcomes and enhanced wound healing (Džamić & Matejić, 2017). Bastari ointment is utilized for the treatment and healing of wounds, particularly infected wounds, as well as burns and deep tissue injuries, facilitating the regeneration of these wounds. Compounds derived from natural products can serve as direct medications for wound healing or as drug carriers for the delivery of other therapeutic agents (Sharifi-Rad et al., 2018). Traditional wound healing therapies have been explored both experimentally and clinically, with numerous studies providing extensive information about the role of these therapies in addressing the underlying causes of wounds. Medicinal plants are regarded as potent and promising therapeutics for enhancing wound healing processes, owing to the diverse array of active and effective ingredients they contain. Traditional medicines may be favored over modern therapies due to

their low cost, minimal adverse effects, bioavailability, and efficacy (Hajialyani et al., 2018). Bastari ointment, along with various medicinal herbs, is rooted in the rich experiences of countless healers over the centuries, passed down through generations or developed through personal experiences over time. Modernity and cultural revolutions have not diminished the profound wisdom inherent in this natural medical paradigm (Khan, 2014). The awareness of medicinal plant usage is the result of many years of efforts to combat diseases, leading humanity to learn how to utilize drugs derived from barks, seeds, fruiting bodies, and other plant parts (Petrovska, 2012).

The purpose of this paper is to investigate how this folk remedy, which comprises a combination of several medicinal herbs and meat by-products, influences the healing of various wounds by examining the effects of each component.

Materials and Methods

This is a descriptive study that focuses on the development of a questionnaire consisting of eight questions regarding "Bastar Ointment". The theoretical framework is grounded in a review of literature and various studies that have been conducted by relevant authors, where the data conducted by other authors have confirmed the effects of each of the medicinal plants. The data collected in this study pertains to the period from January 2024 to April 2024.

In total, 513 participants (241 men and 272 women) completed the questionnaire. The age groups of the participants were categorized as follows: 0-20 years, 21-40 years, 41-60 years, and participants over the age of 60 years. The participants who responded to the questionnaire were mainly from the Tirana Highlands and surrounding villages; however, there were also participants from other cities in the country and from outside the region of Albania.

TABLE 1 presents the age distribution and the number of participants.

Participants' age	Number of participants'
0 - 20	136
21 - 40	123
41 - 60	141
>61	113

The Properties and Composition of Bastar Ointment

The effects of the ointment are numerous; it aids in skin regeneration and ensures the formation and strengthening of cell membrane structures. The Bastar ointment is composed of a blend of herbs, including sage, which contributes beneficial compounds that combat infections due to its high antibacterial and antifungal properties. Additionally, it has calming effects, preventing the aggravation of infections, and, importantly, it has no side effects (Ghorbani & Esmaeilizadeh, 2017). A medicinal plant is defined as any plant that contains substances in one or more of its organs that can be used for therapeutic purposes or that serve as precursors for the synthesis of useful drugs (Sofowora et al., 2013).

Bastar Balm/Ointment contains

Sage – Salvia officinalis
Balsam Flower – Hypericum haplophylloides
Poppies – Papaver rhoeas
Spanish Broom – Spartium junceum L.
Olive Oil – Oleum Olivarum
Bee Pollen – Propolis
Honey – Mel
Sheep tail fat

The enhanced efficacy of treatments utilizing natural extracts is attributed to the creation of synergy, which amplifies the effects of products derived from natural sources, as well as contemporary therapeutic approaches. Numerous studies have demonstrated that this synergistic interaction stems from the antibacterial, antioxidant, and anti-inflammatory properties of these substances, which are highly beneficial for wound healing (Azimi et al., 2020).

In folk medicine, S. officinalis has been used to treat various disorders (Ghorbani et al., 2017). Currently, many reports are using S. officinalis (L.) to analyze its pharmacological activity and studies have shown its potential as anti-inflammatory (Rodrigues et al., 2012), antioxidant (Generalic et al., 2012), to prevent neurodegenerative disease (Takano et al., 2011), antimicrobial (Garcia et al., 2016), antitumor activity (Al-Barazanjy et al., 2013; Akaberi et al., 2015), and anti-diabetic activity (Christensen et al., 2010).

The major phytochemicals in the flowers, leaves and stems found in plant S. officinalis have been well identified. A wide range of constituents including alkaloids, carbohydrates, fatty acids, glycoside derivatives (e.g., cardiac glycosides, flavonoid glycosides, saponins), phenolic compounds (e.g., coumarins,

flavonoids, tannins), polyacetylenes, penetrants (monoterpenoids, diterpenoids, triterpenoids, sesquiterpenoids) and waxes have been found in S. officinalis (Ghorbani et al., 2017).

Balsam flower – *(Hypericum perforatum)*, it is a very popular traditional herbal medicine due to its wide range of applications, including the treatment of skin problems such as healing burns, stomach ulcers, gallbladder disorders, inflammation of the bronchi and genitourinary system, colds, migraines, headaches, diabetes mellitus, and obesity. It is also effective in the treatment of mild to moderate depression (Nobakht et al., 2022).

Balsam flowers have long been used both orally and topically for wound and burn healing in folk medicine of various countries. In the clinical study of Özturk et al., it was shown that the oil extract of hypericum perforatum promotes the healing of surgical wounds from cesarean section birth as a result of increased epithelial reconstruction (Özturk et al., 2007).

The plant Papaver Rhoeas L, belonging to the Papaveraceae family, is also used as food and is used to treat inflammation, respiratory problems, diarrhea, cough, insomnia, asthma, and anxiety. Extracts of P. rhoeas have many pharmacological actions, including antioxidant, antimutagenic, cytoprotective, antibacterial, analgesic, and antiulcerogenic properties (Katarzyna et al., 2021).

Several international phytochemical studies show that Papaver rhoeas contains a high concentration of secondary and primary metabolites, including amino acids, carbohydrates, fatty acids, vitamins, phenolic compounds, essential oils, flavonoids, alkaloids, coumarins, organic acids and other compounds, which explains its use in foods and traditional pharmacopoeia (Grauso et al., 2021).

Virgin olive oils have anti-atherosclerotic potential, favoring endothelial function and maintaining blood pressure, preserving lipoprotein function, exerting anti-inflammatory and antioxidant effects, and modifying gene expression in several tissues to maintain proper homeostasis (Visiol et al., 2018). Polyphenols in extra virgin olive oil (EVOO) have also demonstrated beneficial effects on wound healing. EVOO includes triacylglycerols (~98%), fatty acids, and mono- and diacylglycerols (Han et al., 2009).

The healing property of honey is due to the fact that it provides antibacterial activity, maintains a moist wound condition, and its high viscosity helps to provide a protective barrier to prevent infection (Mandal et al., 2011). Honey also contains essential oils, the composition of which includes terpenes (thymol, bisabolol, farnesol and cineol). Other components of honey include water, amino acids and proteins. Proline (50-80%) dominates among amino acids and its increased presence indicates the maturity of honey. Vitamins constitute a small group of components present in honey and they are mainly: thiamine, riboflavin, pyridoxine, p-aminobenzoic acid, folic acid, pantothenic acid and vitamins A, C,

E. Honey also contains minerals: phosphorus, potassium, calcium, magnesium, sulfur, iron, copper, manganese and zinc (Kurek-Górecka et al., 2020).

Propolis has been used for a long time in medicine due to its bactericidal, antiviral, antifungal, anti-inflammatory, antitumor, immunomodulatory and antioxidant activity (El-Sakhawy et al., 2024).

Spartium junceum L, consists of cellulose, a biocompatible and biodegradable polymer, useful in various applications such as scaffolds in tissue repair, wound dressings, artificial tissues/skin, controlled drug delivery, blood purification, and cells (Azimi et al., 2020).

Results

Study Population and Data Collection

The study involved the collection of 513 responses to a questionnaire administered between January 2024 and April 2024. The questionnaire was distributed in both digital and written formats to accommodate participants of varying ages, as not all had access to complete the online version. Participants were entrusted to provide accurate data. Prior to distributing the questionnaire, all participants were informed about the study's purpose and assured that their privacy would be strictly maintained.

The wounds varied in type, including burns, infected wounds, deep lacerations, and scratches.

In addition to using Bastar Ointment, participants were asked whether they had utilized any other medications, such as antibiotics or similar treatments. They also inquired about any allergic reactions experienced while using the ointment, as this folk remedy contains various medicinal plants. Patients were requested to describe their wound care regimen, specifically how many times a day they treated the wound—once, twice, or three times—and the duration it took for the wound to heal. The healing period was categorized into three ranges: 5 to 10 days, 11 to 15 days, and more than 15 days.

Data Analysis

Based on the data extracted from the administered questionnaire, 513 participants reported positive outcomes. Among them, 12% used the treatment for scratches, 28% for deep wounds, another 28% for infected wounds, and 32% for burns. When asked whether they used concomitant medications, such as antibiotics, to evaluate the effects of the treatment—whether it was their own or assisted by another medication, the results indicated that 99% did not use any concomitant

medication, while only 1% did. Additionally, when participants were asked if they experienced any allergic reactions, the results showed that 100% reported no adverse reactions. The Bastar ointment was used by 19% of patients once a day, 63% of patients twice a day, and 18% of patients three times a day.

The data analysis based on the patients' responses indicates that 51% of patients required 10 to 15 days for their wounds to heal, 30% needed 5 to 10 days, and 19% required more than 15 days.

It has been observed that the participants who used Bastari Ointment primarily hail from the Tirana Highlands and Tirana, although a significant number also comes from the city of Burrel. Additionally, there is a notable presence of users from other cities in Albania, as well as from outside the region. This data indicates that Bastari Ointment enjoys widespread use within the community (see table 2). Table three presents' data regarding the types of wounds for which Bastar Ointment was utilized. Patients reported that Bastar Ointment was used for 12% of scratches, 28% of deep wounds, 28% of infected wounds, and 32% of burns. When asked whether they had used any other concomitant medications (such as antibiotics) during wound treatment, the responses indicated that 99% of patients did not use any concomitant medication, while 1% of patients did use any concomitant medication. In response to the question regarding whether patients experienced any allergic reactions while using Bastar Ointment, the data indicated that 100% of patients did not report any allergic reactions. When asked how long it took for their wounds to heal, the data revealed that 30% required 5 to 10 days, 51% needed 10 to 15 days, and 19% took more than 15 days. Regarding the frequency of wound treatment, the results showed that 19% of patients treated their wounds once a day, 63% treated them twice a day, and 18% treated them three times a day (see table 3).

TABLE 2 displays the residences of patients from various cities and regions in Albania, as well as from abroad.

Tirana highlands	270
Tiranë	130
Burrel	55
Durrës	12
Kamëz	6
Krujë	4
Shkodër	5
Elbasan	4
Tetovë	4
Prizren	3
Preshevë	3
Gjilan	2

Dibër	2
Kukës	3
Berat	1
Stamboll	1
Prishtinë	1
Lushnje	1
Lezhë	1
Tepelenë	1
Bulqizë	1
Tropojë	1
Itali	1
Korçë	1

TABLE 3 summarizes participants' answers regarding wounds, whether any concomitant medication was used, whether any allergy was shown during the treatment, healing time and frequency of wound treatment.

Types of wounds reported	Participants
Scratch	63
Deep wound	143
Infected wound	144
Burn	163
Whether any concomitant medications were used	
Yes, they did use	508
No, they didn't	5
Whether participants had any allergies	
Yes	0
No	513
The healing time required for each participant	
5 – 10 days	154
11 – 15 days	260
>16 days	99
The frequency of wound treatments	
Once a day	95
Twice a day	325
Three times per day	93

Discussion

To our knowledge, this study is the first of its kind in Albania. We hope that further research will be conducted to enhance our understanding of this traditional folk medicine.

Based on the pharmacological properties of each ingredient in the popular formulation and the data collected, we can conclude that Bastar Balm ointment positively influences the rapid closure of wounds and the reduction of complications. Previous studies have identified a broad spectrum of pharmacological activities associated with *Salvia officinalis*. These findings include anti-inflammatory, antinociceptive, antioxidant, antimicrobial, antimutagenic, antidementia, hypoglycemic, and hypolipidemic effects (Ghorbani & Esmaeilizadeh, 2017). These results align with our study, as participants reported no side effects and experienced quick healing times. Furthermore, the results indicate that *Hypericum perforatum* extract is highly effective in wound healing, promoting re-epithelialization and collagen accumulation while leaving no scars, due to its anti-inflammatory and antigranulation properties. Additionally, this plant exhibits antibacterial and antifungal effects (Yalcınkaya et al., 2022). According to the results obtained from relevant studies, the extract of *Papaver rhoeas* exhibits antimicrobial properties that are effective even against microbes resistant to antibiotics. Additionally, it possesses anti-aging properties (Shahyad et al., 2023). Previous clinical studies have demonstrated that extra virgin olive oil (EVOO) contains anti-inflammatory, antioxidant, antimicrobial, angiogenic, and antitumor properties, all of which significantly impact wound healing (Rodrigues et al., 2021). Honey also possesses antibacterial properties and promotes fibroblast migration and collagen deposition, playing a crucial role in tissue regeneration (Kurek-Górecka et al., 2020). In studies reviewed by Yang, it was observed that propolis stimulates collagen production and exhibits antimicrobial and anti-inflammatory properties, while also enhancing scarring and reducing pain (Yang et al., 2022). Furthermore, several previous studies have reported beneficial effects on tissue regeneration that align with our data, as all our participants reported positive effects from Bastar Ointment, which is composed of a blend of herbs and honey. It is important to note that Bastar Ointment also contains sheep's tail fat, which has been shown to be rich in vitamins that contribute to cell membrane construction, strengthen the immune system, and positively impact the treatment of sciatic nerve pain (Ahmed, 2023). All of these properties play a vital role in wound healing.

The observed increase in the extractability of the subunits of the substances contained, particularly from wounds treated with the ointment, may explain its beneficial reparative properties. Furthermore, wound healing is characterized by the absence of significant reduction of the inflammatory phase, accompanied

by accelerated re-epithelialization. According to the results, Bastar Ointment can enhance the re-epithelialization process. The increased extractability in wounds treated with this folk remedy may stem from its ability to stimulate the proliferation and survival of monocytes, thereby indirectly increasing cell counts (Volk et al., 2011). Additionally, the presence of vitamins A and C in sheep's tail fat may positively influence the remodeling phase, as vitamin C is essential for collagen biosynthesis, while vitamin A may regulate the preferential expression of TGF-β3, promoting scar-free wound regeneration and repair (Aust et al., 2010). The antimicrobial activity observed in most ointments is attributed to the enzymatic production of hydrogen peroxide (Mandal & Mandal, 2011).

We can attribute the healing properties of Bastar Ointment to its antibacterial activity, which helps maintain a moist wound environment. Additionally, its high viscosity creates a protective barrier that prevents potential infections. The ointment's immunomodulatory properties also play a crucial role in wound repair.

Conclusions

The current study presents therapeutic data on Bastar Ointment, which has been traditionally used in the Tirana Highlands, an area known for its diverse and rich biodiversity. We conclude that our study confirms the therapeutic efficacy of Bastar Ointment, which is associated with the creation of a favorable biochemical environment that supports the wound healing process.

Limitations and Recommendations

We acknowledge that there are limitations to our study, such as the number of participants. Although we have a substantial number of participants, having more data is always advisable. The second limitation is the lack of biochemical analysis of the ointment, which could provide us with a better understanding of its underlying mechanisms. However, to the best of our knowledge, this is the first study conducted on Bastar Ointment in Albania, and we hope that more studies will be carried out in the future.

We believe that integrating advanced pharmacological techniques with traditional knowledge could be a significant step forward in the development of cost-effective, innovative, and effective medications. This combination of traditional and modern approaches may lead to the creation of new wound healing drugs with a marked reduction in undesirable side effects. Our research enhances the understanding of the chemistry and biological potential of Bastar Ointment, which has not been previously studied. This work provides a foundation for

future investigations that may result in the development of herbal-based health-promoting agents for various wound-related issues.

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