

## Identification of Potential Antibiotic-Like Compounds in a West Mongolian Mumijo Extract with Traditional Applications

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### Abstract

Mumie has been used by human being since approximately 3000 years ago. It is seen that mumie is used in both oral and topical administrations in folk medicine and it has no any adverse effects. Ancient healers were using mumie for curing bone fractures, joint dislocations, poliomyelitis, facial nerve paralysis, gastro-intestinal ulcers, intoxications and tuberculosis.

According to information by the researchers, mumie contains proteins, amino acids, phospholipids, gumine, benzoic acid as well as numbers of metallic elements. Ionized elements are essentially important for both animal and human bodies, and therefore their deficiency is compensated via diets, water and plants, which can provide with necessary nutrients. Therefore, compounds, containing so many types of matters like mumie are believed to be of essential importance in human and animal health.

This study investigates the medicinal properties of a substance traditionally used for treating various skin ailments, wounds, burns, ulcers, and inflammatory disorders of the digestive system. Historical use suggests potential efficacy against bacterial inflammation. To explore its antibiotic potential, we conducted a comprehensive analysis of the extract, purifying natural mineral medicinal compounds and utilizing a violet-red spectrophotometer (USA-BIO-RAD). Our analysis revealed the presence of significant antibiotic-like compounds in the extract, including Terramycin hydrochloride or Oxytetracycline hydrochloride at a concentration of 838.64% and pantothenic acid with hemicalcium salt at 835.47%. These findings imply promising antibiotic properties in the substance, aligning with its historical medicinal applications. Further research is warranted to validate these properties and assess the safety and efficacy of the extract for medical purposes.

**Keywords:** Terramycin hydrochloride; Antibiotic-Like Compounds; Oxytetracycline hydrochloride

### Introduction

Humans have known and used a natural compound called "baragshun" spread throughout the mountainous regions of Asia for nearly 3000 years. In recent years, there has been an increase in the sale of preparations recommended for use in traditional diseases. However, the lack of scientific research and analysis is a challenge. "Jud Shi" (Four Basics of Medicine) describes its treatment of inflammatory diseases of organs such as the liver, kidney, and stomach, as well as its external and internal use for various abscesses, open wounds, and inflammations. Therefore, studying biologically active compounds against pancreatic inflammation is an important contemporary issue [1, 2].

Traditional medicine has long relied on various natural substances to treat a range of ailments, including skin conditions and digestive disorders associated with inflammation. Such historical practices often hint at the presence of compounds with therapeutic potential. In this study, we delve into the properties of a substance utilized in traditional medicine for its apparent effectiveness in managing pustules, wounds, burns, ulcers, and inflammatory digestive diseases. This substance's traditional use suggests an intrinsic ability to combat bacterial infections and reduce inflammation (Figure 1).

### Methods

An analysis of antibiotic-like compounds was conducted at the Customs Central Laboratory using a violet-red spectrophotometer (USA-BIO-RAD) on a sample of bargashun prepared and purified from Western Mongolia [3].

### Results

The analysis of the extract yielded compelling results, indicating

the presence of antibiotic-like compounds:

Terramycin Hydrochloride or Oxytetracycline Hydrochloride (838.64%): These well-known antibiotics are widely used in clinical settings to treat various bacterial infections. The remarkable concentration detected in the extract suggests significant potential in combating bacterial inflammation [4-6].

Pantothenic Acid and Hemicalcium Salt (835.47%): Pantothenic acid, a B-vitamin, plays a pivotal role in diverse metabolic processes, particularly in fatty acid synthesis. Its presence in the extract may contribute to its overall health benefits [7, 8].

### Discussion

Regarding the composition of baragshun, previous research primarily focused on analyzing moisture content, ash content, and large and micro-root bodies. The results of this study provide a new perspective on unraveling the therapeutic significance of fennel as a medicinal substance and its pharmacological action on the body.

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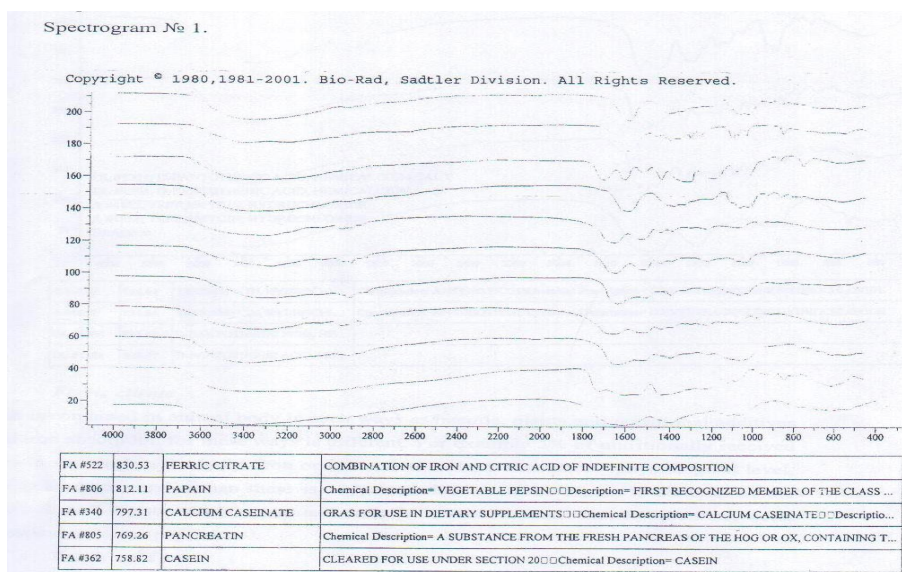


Figure 1: Analysis results.

The identification of Terramycin hydrochloride or Oxytetracycline hydrochloride and pantothenic acid with hemicalcium salt in the extract underscores its potential as a therapeutic agent. The traditional use of this substance in treating skin conditions and digestive inflammation aligns with the presence of these antibiotic-like compounds.

### Conclusion

It has been found that the ingredients of baragshun prepared from Western Mongolia contain anti-inflammatory terramycin hydrochloride or oxytetracycline hydrochloride (838.64%) and pantothenic acid hemicalcium salt (835.47%). In conclusion, this study provides compelling evidence of antibiotic-like properties in a medicinal extract with a rich history of traditional use for various health conditions. The presence of Terramycin hydrochloride or Oxytetracycline hydrochloride and pantothenic acid with hemicalcium salt at notably high concentrations suggests its potential as a natural remedy for bacterial infections and inflammatory diseases. Nevertheless, further research is essential to confirm these properties, evaluate safety profiles, and establish clinical efficacy for medical applications.

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