RESULTS FOR ANTIBIOTIC - LIKENESS ACTIVITY OF THE MUMIO AGAINST *SALMONELLA SPP*

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ABSTRACT

In this study, antibiotic likeness activity of natural mineral-mumio (baragshun) against Salmonella spp. was studied. Purified mumio was diluted by 1:1, 1:5, 1:5, and absorbed into an antibiotic disk to test it on culture of Salmonella spp. which causes gastro-intestinal infection and food poisoning. Results of screening showed activity of mumio against Salmonella spp.. The experiment was performed with a control group /antibiotic disk/ to compare the results.

KEYWORDS: pure mumio, antibiotic-likeness, *Salmonella spp.*

BACKGROUND

Mumio is widely used in traditional Mongolian medicine since ancient times. This pale brown to dark brown tar-like substance is termed as "Baragshun", which means mountain juice. It is found as deposits in caves and rocky crevasses of high mountains in Mongolia and other parts of Central Asia [2,3]. This traditional drug is also known as Mumie or Mumijo. In Ayurvedic medicine, Mumie is termed as Shilajit. There are several other terms for Mumie. Mumio is a versatile, naturally occurring biological regulator, possessing a wide spectrum of health uses. It exerts a favorable effect on metabolic processes and on the human immune system, restoring decreased functions of the body. Mumio is a unique biologically-active substance with striking healing effects and protective influence on the human body. It long been used in Asian and Russian traditional medicine, and is still used today for medical purposes. Especial property of mumio is good effect in diseases of cause's microbes. So its property very interesting for us and we decided to study this property of mumio.

During pathogenic bacterial infection, many types of antibiotics are used or re-used (repeatedly), so that some pathogenic bacteria become antibiotic resistant. For this reason, effectiveness of treatment is reduced and it causes negative impact on human and animal health. We performed this study to identify antibiotic - likeness activity of naturally derived mineral-mumio and to use it for treatment.

METHODS

Salmonella spp. strains were used in this study. Virulence, stain, shape, cell culture, growing type and purity were determined by common bacteriological methods while antibiotic-

likeness property was studied by several variations of a disk method. In the experiment, mumio which was collected from western part of Mongolia was used. Sample of mumio was cleaned from mechanical mixture and dried to form powder. Sterility of mumio was tested microbiologically by using 4 types of liquid and solid media such as TSA (Trypticase soy agar), TSB (Trypticasesoy broth), selective and enriched media.In order to investigate the effect of mumio antibiotic property1:1, 1:5 and 1:10 dilutions of mumio powder were used in the experiment. Antibiotic activity of mumio against pathogenic bacteria was determined in solid media based on Kirbi-Bayer's disk diffusion method. In the experiment some antibiotic discs which are widely used for treatment anti- infectious diseases were used. For example; standard tests discs of gentamycin, doxycillin, cefazolyn, chloramphenicol, kanamycin, penicillin, erythromycin, tetracycline from Hungarian Bio Lab. And paper discs with 8 mm diameters (Advantec, Japan) were used for absorbing mumio extract.

RESULTS AND DISCUSSION

Culture of *Salmonella spp.* on liquid and solid media revealed its own characteristics. Culture was diluted by 1:10, then growed on solid media and number of clone was counted in order to estimate colony forming unit of culture. Colony forming unit /CFU/ of *Salmonella spp.* was 4 milliard. When sterility of powdered mumio was tested on 4 types of media (Trypticase soyagar, Trypticase soy broth, Sabura and Thioglycollate), mumio powder was unclean and certain number of bacteria was grown.

Mumio was sterilized by a bactericidal lamp for 15 minutes in the safety cabinet to purify it from bacterial contamination. After that sterilized mumio was re-tested in media mentioned above and there was no bacterial growth appeared. Sterilized mumio's 1:1, 1:5,1:10 dilutions were absorbed into sterile disks and tested on pathogenic *Salmonella spp.* culture. In the result, mumio's 10^{-3} - 10^{-5} dilution had bacteriostatic activity against *Salmonella spp.*

CONCLUSIONS

Mechanically purified mumio powder's sterility test in 4 types of media indicates that it is critically important to test sterility of naturally derived treatment substances by microbiology methods before the substance is used for producing preparations and drugs. As a result of this study, bacteriostatic and antibiotic-likeness activities of mumio using for treatment of inflammatory diseases of internal organs was confirmed.

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