



History and Research Use Mineral Water and Mud on Prikaspiyskoy Depression

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Abstract

The article describes the history of the use of mineral waters and mud peoples living in the territory and migratory Caspian. Prikaspiyskaya cavity region is spread salt dome tectonics within Caspian hydrogeological megabasin. By the salt domes are associated with the majority of the lakes are located in their territory. Pool I S receptacle different brines and saline waters. Where is located mainly underground waters s e balneological groups thereof without "specific" components and properties and iodo x-bromine and sulfide.

Keywords: *Caspian hydrogeological basin; Salt-dome tectonics; Mineral water; Lakes; Brine; Mud chemical composition; Salinity*

Introduction

Underground water man began to use and study from ancient times. Interest in studying the chemical composition of groundwater manifested itself in the era of the Roman and later Byzantine Empire in connection with the extensive use of thermal waters. Even the ancient Romans appreciated the medical and therapeutic properties of the mineral springs of Pamukkale. The healing properties of water at the top of the cliff in Pamukkale was known even thousands of years ago, as evidenced by the ruins of the ancient Hierapolis (the first century of our era), located around. In 190 g. BC the Romans built the city of Hieropolis on local springs of thermal waters, where noble people and political figures of that time came to rest. With the help of mineral waters, nervous disorders, rheumatism, skin diseases, physical exhaustion and digestive disorders were treated. It was in Hierapolis that mineral water from nearby hot springs became widely used for treating various forms of diseases. In fact, the city became one of the first balneological resorts of the ancient world. The modern resort hot mineral carbonated water in Pamukkale very popular currently in use and protected by Turkey.

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Experimental

Surface water of rivers, lakes throughout human civilization has always attracted attention for its health-enhancing properties on the human body. Unique properties of medicinal mud of reservoirs are known since ancient times. The history of balneology is as old as the world. Already in ancient times the water of rivers, lakes and seas were used as a means for physical purification, for pleasure and rejuvenation. The lake is sacred and the nomads because of its medicinal qualities. Nomads healed their wounds with healing water and mud. In gratitude for the recovery received as a gift to the lake, they exhibited on the spears flaps of bright cloth with coins wrapped in them. Tales of a miraculous recovery were transmitted from generation to generation to the present [1-5].

Results and Discussion

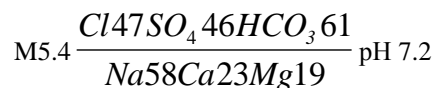
Caspian hydrogeological megabasin stands out as nadporyadk about vy underground water reservoir in the aisles Prikaspiyskaya Caspian Depression is a domain propagation salt dome tectonics within Caspian hydrogeological megabasin. Here there are mineral waters of the following groups of waters: without "specific" components and properties; Bromine, iodine, boron waters and with an increased content of organic substances; Sulphide.

Prerevolutionary works on mineral waters and mud were descriptive. The most famous mineral water of the Lower Volga region-Yergeninskaya had all-Russian fame 25 years before the official recognition of the Caucasian mineral waters. Ergenskiy mineral source known in the literature over 200 years [6]. The source was famous and used as a therapeutic and table mineral water since the XVIII century. In the XVIII-XIX centuries. It was also used for balneological purposes. At present, the classification of mineral waters by V.V. Ivanova-G.A. Nevraeva GOST 13273-88 and GOST P 54316-2011 are being used as a model [7].

He first studied and widely used for therapeutic purposes in 1775 Sareptian physician I.Ya. Vier, who was the first to determine the chemical composition of water. About the open source and its medicinal properties, Vir reported to St. Petersburg, the medical board, calling it "Catherine." In 1776 g of. The source was described by Academician I.P. Falk. A little later (1778), there were two working academic IG Georgi: "Short news about the healing springs found between Sarepta and Tsaritsyn" and "Manual on the use of the Sarept waters". In 1780 g of. Moscow University published a monograph by M.I. Verevkiina "Description of the Catherine waters in the Astrakhan province between the city of Tsaritsyn and the village of the Evangelical Brotherhood of Sarepta assembled on the spot." Then in St. Petersburg came a book II. Boltina "The horopography of the Sarepta healing waters with the application of the necessary information and advice for those who have the intention to go to those waters". In the works mentioned, detailed information on the source is given. It was used at that time not only as a drink, but also for external use in the form of baths, as well as for a kind of mud. Flow rate of the source was 14.4 m³/hour and a total salinity of 5 g/dm³. Water temperature regardless of season remained constant at about 10 Resmyuru above zero.

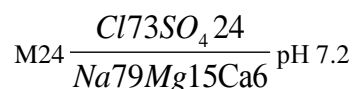
In the second half of the 80s of the XVIII century, the source used nationwide fame. In addition to the local population, he was visited by patients from Moscow, St. Petersburg and other major cities. In some years, (1776) the number of visitors reached 800 people, mostly of noble nobility, military and clergy. In addition, according to Vir, annually carried up to 20,000 bottles. With the discovery of the Caucasian mineral waters, the fame of the spring began to fade and be forgotten. The

number of visitors year after year fewer and in 1901, there was only one visitor "guest". The source was used only by the local population. Mineral water sulphate-calcium-sodium chloride withdrawn from the well 47 used ergeninskih sand (N 2 er), with a depth of 46 m-55 m. The production rate of the well is 1 l/s with self-discharge. Mineral water source is currently in use sanatorium complex in Volgograd. The chemical composition is represented by the following Kurlov formula:



Mineral water rgeninskogo source E belong to a group without the "specific" components and properties. In about the second half of the XX century along the sides Caspian depression zone identified mineral water with a salinity of 510-1 to 100 g/dm³ sodium chloride magnesium, sodium containing iodine, bromine and hydrogen sulfide. Also, sulfate-chloride (chloride-sulfate) sodium, calcium and sodium with a salinity of 6 g/dm³ to 24 g/dm³ are identified.

Solvychegodsk type of highly water withdrawn from gypsum-anhydrite deposits to permi Zavolzhe (n. Red village). The chemical composition of sulfate-sodium chloride water with a salinity of 24 g/dm³ shown formulovoy Kurlova:



In Astrakhan zone with water in Akchagyl deposits opened slabotermalnye iodo-bromine chloride sodium water with salinity 10.5 g/dm³-25 g/dm³ and down the section with brines of different salinity.

Closed lake Caspian cavity confined to salt domes (Aralsor, Baskunchak, Elton, Botkul etc.). In terms of chemical composition, the mineral lakes of the Caspian Sea are sulfate (bitter-saline) and chloride (saline). According to the chemical composition of the brine lakes chloride sodium, magnesium, sodium and III-magnesium chloride; III b-type calcium chloride with mineralization 295-475 g/dm³. Ma terikovye mud lake in the Caspian provinces and salinization are deserted and polupystynnym zones of chloride and sulfate-chloride salt accumulation to them confined field most highly mineralized sulphide muds. Among such fields are mud lakes (Elton 600 thousand M3 and Baskunchak 20 thousand M3, Volgograd and Astrakhan region).

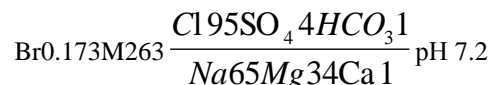
Mineral Lake are a kind of surface deposits of mineral waters and mud. These include the lake, the water of which has a total mineralization of more than 1 g/dm³. According to the genesis of the forming salts in the lakes on the territory of the Volga region, they are usually continental (continental). Mineral water lakes have a different chemical composition in the vicinity of Lake Caspian depressions composition sodium chloride (oz. Baskunchak), magnesium (oz. Elton) with a salinity of 300 g/L or more [6].

Mud therapy, known as an effective method of treatment of the XVI century. In Russia, the known ICs are all types of therapeutic muds. Silt sulphide muds are widely used in the resorts of the Azov Sea, the Black Sea, the Crimea, the Caucasus, the Lower Volga, the Caspian, the southern regions of Siberia. Mineral (salt) lakes are unique in their composition, temperature regime and therapeutic effect. The history of the development of therapeutic mud, rock salt, brine and other natural resources of the Caspian Basin and outside the Sol-Iletska steppe has already more than one century. Traditional methods of treatment on lakes have existed for many centuries. Currently, more than 500 thousand people rest on the lakes of Sol-Iletska annually.

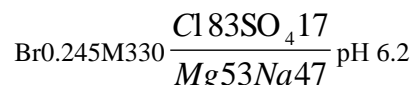
The most interesting attraction of Sol-Iletsk salt group technogenic karst lakes formed at the site of the old salt workings dedicated to the eponymous salt domes [8]. Sol-Iletskoye field timed to coincide with the same name based on the salt dome vodogryazelecheniya is the property of the Orenburg region. Karst Lake located at an altitude of 120 meters above sea level, located on an area of 53 hectares known and mud-cure resort and meters on the territory of the Caspian Basin is Elton Baskunchak Tinakskoe, Medical. At the beginning of the twentieth century, in 1909, a mud treatment facility was established on Elton, which was under the supervision of the pharmacist Kharchenko. A number of papers have been published (IA Mozhaykinym, N. Rose, Stopnevichem AD), claimed as the essential Elton mud-cure resort and climatic station for "thoracic" patients [6,7]. With this pour mud baths device on the lake. Elton and water Ba skunchakskih salt pans SD Stopnevich in 1915 and 1916 years. It was carried out hydrogeological investigations and issued relevant instructions on the use of hydro resources.

Tinakskogo mud and brine lake in the spa treatment is used for about 200 years. Reliable information about the Tinak lakes dates back to the 20-ies of the XIX century. A local peasant-witch doctor from the Khokhlatsky estate (now the Quarantine) was the first to apply the simplest method of treatment: he buried the sick in a natural mud deposit. Very quickly Tinak lakes have gained great popularity among the population. This fame led to the spa in 1820. Initially, mud baths located 10 km from the Volga (1 Tinakskoe lake) and 10 years later was moved to the place of a modern resort.

Kurlova's formula Brims Lake Tinaki:



Example Brims Medicine Lake:



Water Lake's mineralization 263 g/dm³-330 g/dm³ of sodium-magnesium chloride, sodium-magnesium with a bromine content of 173, 245 mg/dm³. Water lakes are analogue and the Ust-Chartak Kachkinskogo balneological types.

Throughout the XX century contribution to the study of mineral water lakes and mud made the following scientists: VI Bernadsky, AN Ogilvy, N.N. Slavyanov, P.N.Chirvinsky, A.D. Stopnyevich, A.P. Gerasimov, A.M. Ovchinnikov, I.K. Zaitsev, etc. Especially it should be noted E.V. Posokhov who made a great contribution to the study of the geochemistry and genesis of lakes in the south of Russia and Kazakhstan (1960-1984).

Conclusion

Hydro resources and lakes Elton, Baskunchak but Tinaki, Medical th, Aralsor and are very popular among the population of the Volgograd, Astrakhan, Saratov roundups with Tay, Republic of Kalmykia, Kazakhstan and allow for a recovery in the summer months. The population of the Southern Urals, Kazakhstan and western Siberia is improving on the Sol-Iletsk karst lakes. Now in an irregular manner muds (peloids), brine and surface water of rivers and Eltonskogo Baskunchak pools used by people in the medical and sanitary purposes in the warmer months. Very popular for balneotherapy in the summer is Lake Baskunchak. In Zavolzhje on Caspian depression are several major bitter salt lakes Botkul, bitter, salty, Elton that serve as

sources for balneology (mud, brine) and can be used for chemical production mineralogical (extraction bromine, magnesium oxide, medical cosmetology and t. etc.). P reamer such as is Dead Sea (Israel, Jordan).

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