

## The importance of developing healing tourism of the Kapal cavity with mineral water

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**Abstract.** The article defines chemical and physical ingredients of mineral water in the Kapal cavity.

*Key words:* mineral water, Balneal, microelement, recreation

In scientific research projects of the Kapal cavity and the usefulness of mineral water, it needs to be pointed out that its physical-chemical structure has not been researched yet within the area of developing healing tourism.

Because of the absence of research and information related to balneological features of the mineral water in the Kapal River, research on defining possibilities of using healthy recreation in the clean and healing water of the Kapal River has been performed since 2011.

In the period of 2010-2012, 12 experiments in the Kapal River were carried out in the "Tamshybulak", "Arasan", "Shynbulak" mineral water springs. These experiments were performed by the "The Science of Land, Metallurgy and Reaching Center", the National Experimental Center of Stockholder's Society.

They used 180-50 kinds of the atomic-absorvial spectrometry "Hitachi" (in Japan); the PFP7-begged photometric (in the UK), optical emission spectrometry Optima with its own associate plasma in taking the test.

The mineral waters which are situated near the Kapal River, the "Arasan", "Tamshybulak", "Shynbulak" springs, contain thawed mineral substances and they are rich in many healthy waters which help develop wellness Centers.

In 2011-2013, the mineral waters were researched and the results showed that the "Arasan", "Tamshybulak", "Shynbulak" springs are clean, pH 6.8 for the "Arasan" №1, 8.97 for the "Arasan" №2, and 7.4 for the "Tamshybulak" spring. №1 and 2 of the mineral water "Arasan" include sulfates (134 and 139 mg/l), chlorides (57 and 60 mg/l), hydrocarbonates (61 mg/l), sturdiness is 1.3 mg/l and calcium is more than magnesium (magnesium -

6mg/l, 4mg/l, calcium - 16mg/l, 20mg/l). So, because of this fact the water is soft. Motascium and calcium are more than captions. The general substances are 102.5 and 107.5 mg/l, while the common mineralizing is 376.5 and 391.5. The structure does not contain slots of phosphorus, nitrate, nitrite, omon (Table 1).

If we take comparisons from the first table, we can see that the "Tamshybulak", "Shynbulak" mineral waters contain slightly more minerals, magnesium (26 and 11 mg/l), calcium (102 and 70mg/l), than it is in the "Arasan" mineral water spring. The research shows that in the "Arasan" mineral water spring the degree of calcium and sodium is lower.

The first table shows that the "Center of Richness and Metallurgy Joint National Science" laboratory presented a discussion, which resulted in the fact that the "Arasan", "Tamshybulak", "Shynbulak" mineral water springs have 9 elements in the periodic table. In addition, increasing magnesium (102 mg/l), ("Tamshybulak" and "Shymbulak"), chloride (60 mg / l) and calcium were indicated as well as the size of many common, sodium (107 mg / "Arasan") (Table 2).

As a result of the chemical analysis of the "Arasan", "Tamshybulak", "Shynbulak" mineral waters it can be seen that there is a difference between the captions and anions in their weight. These can be seen in the Tables under the number 2 and 3.

Facts in the tables 1, 2, 3 materialize the "Arasan" force in the curative year with a healthful spring water composition in the above figures while noticing that the amount of sulfate fluorides is not enough and the size of potassium and natrium is of high figures.

The "Arasan" mineral water consists of useful elements which improve the general condition of human organisms and forms the working ability. The treatment of the "Arasan" mineral water can be started at the temperature of 18°C. At the beginning it is good to start using the water for 2-3 minutes, and then to multiply it by 9-10 minutes. The period of time and the water treatment effect will function very well. Given this, it is necessary to take a dip in the mineral water in the morning at 10.00 and 12.00, and then at 16.00 and 19.00. The use of water helps treating cardiovascular problems and normalizes blood circulation.

The researched flood plain crack mineral water sources of the Kapal River and its physical-chemical indicators, sulfate -defended dirt, correspond with the normative. It belongs to the row of carbonate -sulfate -natrium.

Indicators	№1	№2	№3	№4	Indicators	№1	№2	№3	№4
	Arasan		Tamshybulak	Shymbulak	16. iron mg/l	0.025	0.022	0.034	0.045
	№1	№2							
2. smell is honey	0	0	0	0	chlorides mg/l	57	60	18	11
3. purity	30	30	30	30	18. sulfates mg/l	134	139	149	29
4. pH	6.8	8.9	7.4	6.7	19. hydro-carbonates	61	61	244	244
5. solids	0	0	2	3	21. fluorides mg/l	6.3	11.9	0.6	0.6
6. mineralizing mg/l	376.5	391.5	549	377.5	23. detergents mg/l				
7. spunking mg/l					24. copper mg/l				
8. omon salts mg/l	0	0	0.03	0.02	25. zinc mg/l				
9. nitrites mg/l	0	0	0	0.010	26. lead mg/l				
10. nitrates mg/l					27. chrome mg/l				
11. general solids mg/ekv	1.3	1.3	7.2	4.4	28. potassium-sodium	102.5	107.5	10	12.5
12. calcium mg/l	16	20	102	70	29. manganese				
15. magnesium mg/l	6	4	26	11					

**Table 1.** The "Arasan", "Tamshibulak", "Shymbulak" mineral waters situated near the Kapal River with disassembled structure and their results.

Indicators	Arasan		cons %	Tamshybulak	Shymbulak	Cons %
	1	2				
sodium + potassium	82.32	81.74	0.58	7.24	13.36	6.12
calcium	12.85	15.20	2.35	73.91	74.86	095
magnesium	4.81	3.04	1.77	18.84	11.76	7.08
iron (+2)	-	-	-			-
iron (+3)	0.02	0.02	0.00	0.10	0.10	0.01

**Table 2.** "Arasan", "Tamshibulak", "Shymbulak" captions weight contribution.

	Arasan		cons %	Tamshybulak	Shymbulak	cons %
	1	2				
fluorides	2.45	2.88	0.43	0.14	0.21	0.07
bicarbonates	23.61	14.82	8.79	59.36	85.72	26.36
chlorides	22.06	22.07	0.10	4.37	3.86	0.51
sulfates	51.86	51.12	0.74	36.20	10.18	26.02

**Table 3.** The "Arasan", "Tamshibulak", "Shymbulak" structure of anions.

The observed results and the related physical-chemical qualities correspond with the uses of sanatoriums and physio-treatments. As to the chemical structure of the mineral water sources, Ca, Cl, Na,

K, Ca ions, carbonates and sulphates have their contributions. Research results point to the water quality value as well as to the fact that it corresponds with the demands.