



EXAMINATIONS OF HEALTH TOURISM IN ROMANIAN SALT MINES

Gabriela Cecilia STĂNCIULESCU¹, Elisabeta Ilona MOLNAR²

¹ Bucharest Academy of Economic Studies, E-mail ceclia.stanciulescu@gmail.com

² Partium Christian University, Oradea, E-mail elis@partium.ro

Abstract

The present paper proposes to present and identify the salt caves open to the tourists as well as to analyze speleotherapy as a tourist offer. Speleotherapy has become an increasing sector in recent years, and more and more tourists are attracted by its beneficial effects. The present research was realized in three stages: a documentary study regarding Romanian salt caves and their offers in speleotherapy and spa-tourism, a qualitative research based on a focus group organized at the Slănic-Prahova mine, and a qualitative research based on the interviews with the salt caves' administrators. Such researches brought about results that reflect on the fact that health tourism practiced in salt caves can be viewed as a component of the future, if one takes into consideration the huge potentials of such salt caves together with tourists' increasing interest in speleotherapy. The results of this research highlight the specific features of the deep salt, the places that can be considered real "natural hospitals."

Key words:

Tourism,
Speleotherapy,
Speleo-
Tourism, Health
Tourism.

JEL Codes:

Z32, I31, M38,
Q54

1. INTRODUCTION

Salt caves are natural resources for spa-based tourism, and are used for touristic purposes either in order to visit them, or in order to treat and prevent some diseases of the respiratory system. Speleotherapy has become an increasing sector in recent years, and more and more tourists are attracted by its beneficial effects. For decades salt mines were used for natural therapeutic purposes in the treatment of thousands of patients with respiratory problems, and, as a consequence, more and more entrepreneurs tried to make this kind of treatment more accessible, thus artificial salt caves were created. Salt caves could attract to Romania thousands of tourists from abroad with one condition: one should invest into the infrastructure of the formerly exploited salt mines and one should promote these.

2. ASPECTS OF THE RELATIONSHIP BETWEEN SPA TOURISM AND TOURISM FOR SPELEOTHERAPY

Spa tourism means the travelling of people of different ages, genders and professions to a place where they receive treatment, recovery or prevention of various diseases, especially in the case of people who suffer from physical deficiencies. Tourists travel to spa centers in order to relax and enjoy rejuvenation, to benefit from a feeling of wellness through the means of natural therapies (mineral or thermal-mineral springs, clay and gas therapies, mofetta treatments and so on). The Institute of Research for Tourism defines spa-tourism as “a collection of touristic means and equipments destined to put into practice the natural factors of spa tourism (mineral waters, clay treatments, therapeutic gases, the seaside with its complex therapeutic factors and so on).” Therefore, spa tourism has the following fields:

Figure 1. The Fields of Spa Tourism

Type of spa-tourism	Explaining the content
Balneotherapy	Using natural factors of balneotherapy for medical purposes (treatments).
Balneo-climate therapy	The combination of natural factors: climate, balneo-factors (mineral springs, lakes, salt mines, clays, therapeutic gases, beaches, seawater) of a balneo-climate therapy center for prophylactic, healing, and rehabilitation purposes
Thermal hydrotherapy	The therapeutic use of hot mineral springs for the tourists at a thermal spa resort.
Thalassotherapy	Thalassotherapy consists of medical treatment in the sea shore climate, especially through baths in seawater

Source:*** Editorial colectiv „Factori naturali de cura in statiunile balneoturistice”, I.C.T., Ministerul Turismului, București, 1997, pg. 23 and Cavruc, Valeriu, Sarea Timpul și Omul, Editura Angustia, București, 2006

Romania has a high potential for the balneo-therapeutic treatment of different diseases, because of its natural resources. The physical

and chemical quality and the value of the natural healing factors are similar, even superior to other spa tourism resorts all over the world.

Figure 2. The natural balneotherapeutic resources of Romania

Natural balneotherapeutic resources	Explaining the content
I. Mineral and thermal-mineral springs	Exploited in balneotherapy resorts
II. Therapeutic lakes	They contain waters rich in chloride, sodium and sulfates; one might include here the lakes in salt mines, used for treating rheumatic, neurologic as well as gynecologic problems.
III. Therapeutic clays/muds	Black, sulphurous sapropels can be found at Techirghiol, Amara; mineral clays coming from hot springs at Băile Felix and chemically decomposed peats at Borsec, Geoagiu Băi.
IV. Therapeutic gases	These contain carbon dioxide emanations in the form of natural mofettas (natural emanations of carbon dioxide) or artificial ones (bottled gases) as well as sulphurous emanations
V. Salt caves	These are beneficial for healing the diseases of the respiratory system through the high concentration of salt.
VI. Medical herbs	Their use is known under the name of Phytotherapy and are used for medical as well as cosmetic purposes
VII. Climate factors – used in balneotherapy through climate therapy	Their use is known as climate-therapy
VIII. Air ionization therapy	It has its effects on the organism through air ionizing; natural, predominantly negative air ionization has positive effects in the case of some diseases, such as bronchial asthma and high blood pressure

Source: *** Strategia ARB pentru dezvoltarea turismului balnear 2014”, <http://bioclima.ro/Strategia%20ARB%202014.pdf>

Based on the aforementioned facts one can observe that salt mines represent an important natural factor for spa tourism. They are considered effective because they play a major

role in the treatment of respiratory diseases through their high concentration of aerosols,

continual levels of temperature and humidity. On the other hand, the use of speleotherapy¹ on the large scale was determined by the necessities that occurred in the treatment of respiratory system problems (a field of diseases constantly increasing), which appeared due to the conditions created by our modern world (excessive industrialization in certain areas environmental pollution, urban agglomeration, psychic stress). The beneficial effects of subterranean cures had been known since the time of the Roman Empire, but the first speleotherapy center was founded in Germany in the middle of the 20th century. In short time the use of such subterranean treatment centers were spread in Poland and Hungary. The therapeutic use of salt mines started with a series of observations in the 19th century, but especially after the Second World War: the lack of chronic bronchitis in the case of miners working at the salt mines of Wieliczka (Poland) as well as the rapid healing of newly employed miners were observed; the improvement and shortly the complete disappearance of asthma attacks in the case of people suffering from asthma hiding in cave-shelters during the Second World War's bombings were also outstanding observations.

In Romania there are no concrete records regarding the first treatments by speleotherapy, however, the researcher, J. Fridvalskz wrote the following in 1767: "all who suffer from mange, headaches, and eye diseases are gathered here" (Pucioasă Cave). At present, as a result of recognizing the importance of this therapeutic tradition, a series of salt caves were included in the therapeutic circle: salt cave of Turda, Slănic Prahova, Ocnele Mari, Tg. Ocna and Cacica, Ocna Mureș, Ocna Dej and Praid.

The increasing number of deaths in recent years caused by the diseases of the respiratory system drew people's attention to salt mines as possible sources of respiratory problem treatment. The salt mines bring about

a considerable health improvement, a fact proven by time and understood by more and more people. This is the reason why the population chooses speleotherapy as a method of curing respiratory problems. The factor of microclimate used in the treatment of patients suffering from respiratory diseases is the so-called salt mine's microclimate or the "cave's" microclimate. The specific parameters of the Romanian salt caves' microclimate² are the following:

- Temperature of approx. 12°- 13° C
- Relative humidity of approx. 60- 80%
- Reduced air waves, preferably undetectable(Răsvan Damian, 2006:13)

The most important benefit of salt mine cures is the treatment of the lightest forms of bronchial asthma (in the first phase) in the case of adults and children, of forms of simple bronchitis and of respiratory allergies. For a correct and efficient treatment of such diseases in Romanian salt mines there is a 4 hours program in the morning under strict medical supervision. The program contains relaxation on beds or chairs, general and respiratory medical gymnastics, games (chess, table tennis, snooker), and walking. Most doctors recommend a cure of 1-3 months. The efficient results obtained in maintaining and consolidating health and in recreating the potential energy brought about the growing importance of spa-tourism, determining it to become one of those types of tourism that has a continually growing position in the international tourism market. In such conditions in which – on a global level – one can observe a tendency of replacing traditional treatments with milder ones, with less toxic ones (that is, natural cures), salt caves, as alternative means in the treatment of respiratory diseases, achieved an even greater importance.

¹ The method of treating diseases (asthma, bronchitis etc.) through seating patients in caves or salt domes. [Gen. -iei. / cf. gr. spelaion – cave, therapeia – treatment].

² **MICROCLIMÁT**, *microclimate*, s. n. Totalitatea condițiilor de climă (temperatură, umiditate, vânt) particulare unor spații mici; clima spațiului din imediata apropiere a solului; microclimă. – From fr. **microclimat**. "An [area](#) in which the [weather](#) is usually different from the [areas](#) around it." Cambridge Dictionary.

2.1. Romania's salt resources and their potential use for speleo-tourism

Salt is an indispensable component of human organism, therefore people had become aware of its importance throughout history. Thus, popular tradition in Romania even nowadays has the custom of welcoming someone with bread and salt as a sign of good hospitality.

From the ancient manuscripts to even nowadays' way of thinking, the importance of salt is highlighted in many ways. Salt is one of the most widely spread substances in nature. Rock salt is a mineral rock exclusively formed of the mineral named "halite" (rock salt), a natural substance composed over 96% of NaCl. (Stoica Coriolan, 1981:36)

Salt had a significant importance for the Romans, so that they called it the "gift of earth." Besides the fact that salt represented a means of exchange, it was also a payment for the Roman soldiers, who, together with regular payment received a certain amount of salt, called *salarium*, a vital part of their monthly wage. This is where the Romanian word "salariu" (salary) comes from. (Sora Mihai, 1981:26) Romania is one of the countries that have the richest resources of high quality salt. Our salt supplies are above 6 billion tonnes, so that such supplies are virtually inexhaustible.

In Romania **45 salt deposits** are identified as main salt deposits starting from ancient time up until the present. Many of these had a short existence, but others were continually exploited from ancient times to nowadays. On the same deposit one could observe 10-20 exploitations over time. The most well known exploitation sites from antiquity are: Ocna Slatina, Coştui, Ocna Şugatag, Rona, Ocna Dej, Sărăţel, Sic, Ciceu, Iliuşa, Măştur, Turda, Ocna Mureş, Domneşti, Caianu Mare, Cuzdioara, Vireag, Reteag, Ocna Şugatag, Şintereag, Chiuza,

Tau, Beclean, Sovata, Mărtiniş, Rupea, Ocna Sibiului, Ocnele Mari, Bozasca.

The exploitation sites known from the Middle Ages were identified as follows: Grozeşti, Nord Valea Sării, Sud Valea Sării, Bisoca (Picineaza), Ariceşti, Ghitoara, Teişani, Telega, Doftana, Băicoi, Ocniţa, Praid, Slănic Prahova, Tg. Ocna, Cacica. Among these **there are 7 sites that are still actively exploited** (Slănic Prahova, Ocnele Mari, Tg. Ocna and Cacica – outside the Carpathians and Ocna Mureş, Ocna Dej and Praid – in the inside of Carpathians), (Cavruc Valeriu, 2006:10).

As a result of extracting salt from the subterranean parts, the salt mines appeared. With the passing of time, massive exploitations contributed to the clash of these mines, consequently leading to their transformation into salt lakes. Nowadays we have a great number of lakes that exemplify this phenomenon. Focusing on the proposed thesis of the paper our attention is now directed towards those salt mines that are managed and organized for touristic purposes as well. As a result of extracting salt from the subterranean parts, the salt mines appeared. With the passing of time, massive exploitations contributed to the clash of these mines, consequently leading to their transformation into salt lakes. Nowadays we have a great number of lakes that exemplify this phenomenon.

Focusing on the proposed thesis of the paper our attention is now directed towards those salt mines that are managed and organized for touristic purposes as well.

Figure 3. Romanian salt mines and their managers

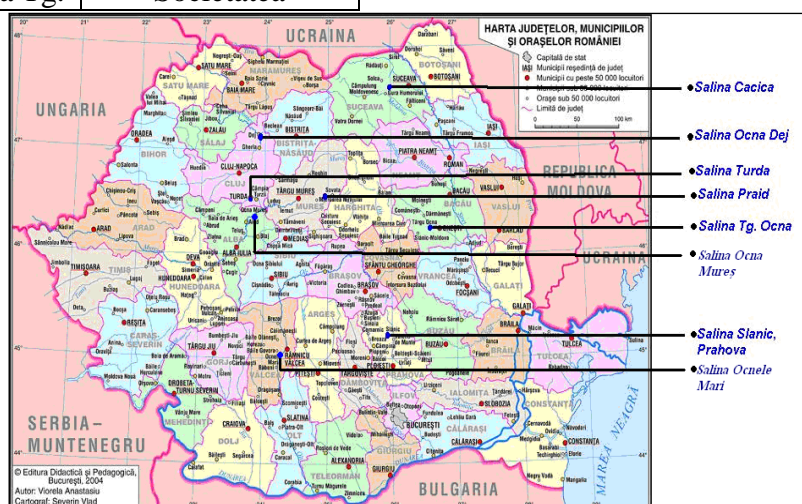
Name of Salt Mine	Administration
Salina Slanic Prahova	Societatea Națională a Sării (National Salt Society)
Salina Cacica	Societatea Națională a Sării
Salina Ocna Dej	Societatea Națională a Sării
Salina Ocnele Mari	Societatea Națională a Sării
Salina Praid	Societatea Națională a Sării
Salina Tg.	Societatea

Ocna	Națională a Sării
Salina Turda	SC.Turda Salina Durgau.SA
Salina Ocna Mureș	Societatea Națională a Sării

Source: Created by the author based on the information from: <http://www.salrom.ro/begin.htm> , <http://www.salinaturda.eu/>

From the aforementioned 8 salt mines only seven are currently exploited, under the administration of the National Salt Society, while Salina Turda is open only for tourism.

Figure 1 – Salt mines on the map of Romania



Source: Made by the author based on the information from: www.salinaturda.eu ; www.salinapraid.ro ; www.salina.ro ; www.turismland.ro ; www.salina-cacica-suceava ; www.slanic.ro

extraction, management, and sale of salt and of other non-metal substances (limestone, mica, graphite, feldspars, and so on), but also the promotion of health and recreation tourism in the salt mines.³

As one can observe it in the image above, salt resources are located mainly in the Sub-Carpathian and Transylvanian areas.

At present, in the context of national economy the continuity of salt mining tradition is ensured by only authorized salt producer in Romania, the National Salt Society - Societatea Națională a Sării S.A – Salrom (SNS), which has as its main objective not only the

³ www.salrom.ro, Access date: 08.04.2011

Romanian legal entity with state capital, Societatea Națională a Sării S.A. (the National Salt Society) is a joint stock company established under Government Decision no. 767/21.11.1997. The widely spread salt deposits on the territory of Romania brought about the appearance and development of the seven mining sites, which later on became branches without legal personality of the National Salt Society- Salrom: Cacica, Ocna Dej, Ocna Mureș, Praid, Râmnicu Vâlcea(Ocnele

A part of the aforementioned salt mines is not totally administered by Salrom SA. For example, regarding the tourist exploitation of the Slănic Prahova salt mine: this is not realized by SALROM. SA, since the company only focuses on the extraction, production, and sale of salt. From a tourism point of view, the salt mine (more precisely the mine called Unirea) is managed by the company named: SC Valdor SA. In 1992 this company took over the complete balneo-climatic activity of the Slanic resort, including the management of the tourism in the Unirea mine.

Salina Turda is the only one among the aforementioned salt mines that is not under the administration of the National Salt Society, but it is managed by the joint stock company *Turda Salina Durgău*, which has a single stockholder, the local City Council of Turda.

For our country salt represents an extremely rich and valuable resource, which was valued by our ancestors from ancient times leaving us the same task to do. Leaving behind old mining traditions the new generations started to use more modern and efficient methods of extraction, thus, the issue of salt has remained a major point of interest for everyone. Throughout centuries salt resources were managed in various ways, and, at present, a national society holds monopoly on the exploitation of salt.

The majority of Romanian salt mines are managed according to tourism services by the SNS, a society responsible for industrial exploitation. This fact means an obstacle in the process of tourism activities, since an effective tourism exploitation needs a special managing program, different from that of the actual exploitation. Such a program is needed for the salt mines that can be visited by the public and that can offer subterranean treatment if they want to function according to the competitive European standards.

Mari), Slănic Prahova, Târgu Ocna. The National Salt Society has its headquarters on Calea Victoriei, no. 220, CP 010099 București 1, România.

3. THE RESULTS OF THE RESEARCH REGARDING ROMANIAN SPELEOTHERAPY – A CASE STUDY

Speleotherapy can be viewed as a method of treating some diseases of the respiratory system, or as a tourist offer. The beneficial effects that the salt cave's microclimate has on the respiratory system determine more and more tourists to visit such places. Moreover, there are numerous tourist packages that include speleotherapy in their services.

There are a lot of salt mines exploited in terms of tourism not only in Romania but also in Europe. In the first part, the present chapter proposes to identify the tourist offers of these salt mines, and then attempts to reveal a relatively new method of substituting natural salt caves by artificial microcaves.

The use of speleotherapy⁴ on the large scale was determined by the necessities that occurred in the treatment of respiratory system problems (a field of diseases constantly increasing), which appeared due to the conditions created by our modern world (excessive industrialization in certain areas, environmental pollution, urban agglomeration, psychic stress). The beneficial effects of subterranean cures were known since the time of the Roman Empire, but the first speleotherapeutic center was founded in Germany in the middle of the 20th century. In short time the use of such subterranean treatment centers were spread in Poland and Hungary.

The therapeutic use of salt mines⁵ started with a series of observations in the 19th century,

⁴ The method of treating diseases (asthma, bronchitis etc.) through seating patients in caves or salt domes. [Gen. -iei. / cf. gr. spelaion – cave, therapeia – treatment].

⁵ **Salt therapy** is a natural therapy that has been practiced since the 18th century. It involves inhaling dry salt, which cleanses both the airways and the skin to relieve congestion, inflammation and skin irritations. Salt therapy is a natural and non-invasive therapy that can help relieve the symptoms of a wide range of respiratory and skin conditions. It is a natural anti-inflammatory, antibacterial and antihistamine, so people experiencing everything from asthma to eczema can expect significant and lasting relief following regular salt therapy.

but especially after the Second World War: they could observe the lack of chronic bronchitis in the case of miners working at the salt mines of Wieliczka (Poland) as well as the rapid healing of newly employed miners; the improvement and shortly the complete disappearance of asthma attacks in the case of people suffering from asthma hiding in cave-shelters during the Second World War's bombings were also notable.

In Romania there are no concrete records regarding the first treatments by speleotherapy, however, the researcher, J. Fridvalskz wrote the following in 1767: "all who suffer from mange, headaches, and eye diseases are gathered here" (Pucioasă Cave). At present, as a result of recognizing the importance of this therapeutic tradition, a series of salt caves were included in the therapeutic circle: salt cave of Turda, Slănic Prahova, Ocnele Mari, Tg. Ocna and Cacica, Ocna Mureș, Ocna Dej and Praid.

The Slănic Prahova is different from the other salt mines in the country since it is the largest one.

Moreover, it is unique in Europe because the mine's area covers 90.000 square meters and it is 60 meters high, with an opening in the ceiling of 10 meters. It has 208 meters depth and it has 14 rooms.

Slănic Prahova incorporates three former exploitation sites: Carol Mine (currently closed), Mihai Mine (currently hosting sports competitions – plane modeling, athletics) and Unirea Mine (open for visiting). Nowadays

The dry salt aerosol particles are inhaled deep into the client's lungs to relieve inflammation and loosen congestion to allow easier and improved breathing. The salt particles help to open up the airways, increase oxygen intake and cleanse the airways of smoke, dust, pollutants and other allergens. When the salt lands on the skin it also helps to relieve sore, flakey, red and irritated skin caused by skin conditions. Consistency is key when it comes to salt therapy. After regular salt therapy, breathing will become easier and shortness of breath, wheezing, coughing, congestion and irritated skin will gradually be alleviated. It is important to remember that salt therapy is not an alternative therapy, but a complementary one. It is designed to relieve the symptoms of a condition and work in conjunction with existing medication, resulting in even greater relief.

exploiting activity is still present in the Victoria mine. Its origins date back to Count Mihai Cantacuzino, who, realizing that there is a huge salt deposit in the Slanic region, wanted to open a salt mine and, thus, bought the Slanic estate between 1685 and 1694.⁶

The first mining site was opened in 1881, and it was the Carol mine that served as salt extraction mine for 61 years, up until 1881. In 1912 a new mine was opened, named Mihai, and this was also the first mine in Romania that had electric light. In 1943 a new exploitation site was opened, named Unirea, and it was situated under the Mihai and Carol mines. Extraction in this mine was performed until 1972; then it became transformed into a site destined for tourists' visits and healthcare. From 1970 to nowadays it is only the Victoria mine in which there is active salt extraction.

The beneficial effects of the salt mine's microclimate at Slănic has been known since the 1960s. Due to the numerous positive results in the treatment of respiratory diseases, the importance of salt mines has increased in recent years.

The **microclimate** in salt mines is a favorable natural therapeutic factor in the treatment or in the alleviation of respiratory disorders.

One of the subterranean rooms hosts a historical museum of salt named by its author, the sculptor Iustin Năstase, "*Sala Genezei*", the *Room of Genesis*. One can admire here the busts of Traian and Decebal, surrounded by the specific elements of Dacian and Roman people. On one of the salt mine's walls, in a stone relief, one can admire Mihai the Valiant, and, in another room, one can find the salt statue of Mihai Eminescu. Moreover, there are expositions of mining flowers and amber.

Next to these, one can find leisure and recreation facilities: a small football field, a space for children with small cars and bicycles, inflatable playground for children, swings, gilders, spaces for table tennis and snooker. There is a space destined for eating, arranged

⁶ <http://www.slanic.ro/istoric.html>

as a shop, with tables and chairs around it. There is also a souvenir shop with ethno-folkloric objects and traditional pottery for sale. The lake with salt water has an essential role in attracting the tourists.

The results of the two qualitative researches, one based on a focus group organized at the mine of Slănic-Prahova, and the other one based on an interview with the administrative staff of the salt mine resulted in a SWOT analysis which reflects on the fact that health tourism in salt mines seems to emerge as an important component of future life, if one takes into consideration the great potential that lies in salt mines together with tourists' increasing interest in speleotherapy.

The results of this research highlight the specific features of the deep salt, the places that can be considered real "natural hospitals."

Figure 4. **SWOT Analysis of speleotherapy tourism in salt mines**

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • High potential generated by the presence of salt mines in every region of Romania • A loyal clientele formed of people of various ages (from children suffering from asthma to adults and old people with chronic diseases); • The population's faith in the therapeutic power of salt; • The development of the opportunity of spending free time according to social categories benefitting from the therapeutic powers of salt; • Resorts with housing and treatment of high standards 	<ul style="list-style-type: none"> • The unequal development of the facilities for therapy and tourism in salt mines; • The unequal level of professionalism of those who offer medical services in salt mines; • The lack of investments in speleo-tourism; the majority of salt caves are managed by the state; • The excessive dependence of salt cave tourism on the interior market; • The limited offers of resorts of 3-5 stars demanded by foreign tourists; • Dependence on the system of refunded treatment tickets which makes balneo-tourism a less

<p>appeared, in order to attract certain customers with high incomes and high expectations (including foreign tourists);</p>	<p>profitable business activity;</p> <ul style="list-style-type: none"> • The high level of deterioration in the majority of housing and treatment establishments; • The foreigners' lack of knowledge regarding the therapeutic possibilities of Romanian salt, and, the reduced offer of alternative services/links to specific market segments, including entertainment and business.
<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> • The diversification of tourism services in salt mines, in the sense of orienting towards a tourism of recreation and of introducing alternative methods in cures such as anti-stress, relaxation, spa; • A global tendency of returning to nature; • The tourism potential in the field of speleo-tourism in not yet completely valued; • The readiness of the local population and of local communities to offer assistance and services to tourists looking for the beneficial effects of salt; • Encouraging the diversification of food and commercial services in the locations around salt mines; 	<p>RISKS</p> <ul style="list-style-type: none"> • The harsh competition on the international market of other forms of tourism that are designed for those interested in health (thermal springs, balneo-therapy, thalassotherapy, spa, fitness/wellness; thermoludism and aquatic sports); • Identifying and accessing some budgets destined for the preservation of salt's therapeutic specificities and the modernization of salt exploitation; • The lack of research projects that could draw up new ways of tourism exploitation in salt mines;

4. CONCLUSIONS

The most important benefit of salt mine cures is the treatment of the lightest forms of bronchial asthma (in the first phase) in the case of adults and children, forms of simple bronchitis and of respiratory allergies. For a correct and efficient treatment of such diseases in Romanian salt mines there is a 4 hours program in the morning under strict medical supervision. The program contains relaxation on beds or chairs, general and respiratory medical gymnastics, games (chess, table tennis, snooker), walking. Most doctors recommend a cure of 1-3 months. The efficient results obtained in maintaining and consolidating health and in recreating the potential energy brought about the growing importance of spa-tourism, determining it to become one of those types of tourism that has a continually growing position in the international tourism market.

In such conditions in which – on a global level – one can observe a tendency of replacing of traditional treatments with milder ones, with less toxic ones (that is, natural cures), salt caves, as alternative means in the treatment of respiratory diseases, achieved an even greater importance.

REFERENCES

1. Cavruc, V, (2006) *Sarea Timpul și Omul*, Editura Angustia, București
2. Căndea, M, (2001) *Spațiul geografic românesc*, Editura Economică, București
3. Damian, R, (2004) *Saline integrate circuitului turistic*, Editura Cartea Universitară, București
4. Ilie, M, (1982) *Exploatarea miniere în trecutul românesc*, Institutul Geologic, București
5. Mihai, Ș, (2005) „*Strategii privind creșterea competitivității produsului turistic balnear*”, Teză de doctorat, Editura ASE, București
6. Popescu-Voitești, I, (1993) *Sarea regiunilor carpatice românești*, Editura Fundația pentru Literatură și Artă
7. Sora, M, *Sarea pamântului*, Editura Humanitas, București, 2007
8. Stănciulescu, G., Lupu, N., Țigu, G., *Dicționar poliglot explicativ de termeni utilizați în turism*, Editura All, 1998
9. Stoica, C, *Sarea și sărurile de potasiu*, Editura Tehnică, București, 1981
10. *Strategia ARB pentru dezvoltarea turismului balnear 2014*”,
<http://bioclima.ro/Strategia%20ARB%202014.pdf>
11. Medicaltourism magazine
<http://www.medicaltourismmag.com/articles/>
access date :14.12.2016
15. Salinele Roman, www.salineloroman.ro, acces date 10.09.2016
16. Societatea Nationala a Sarii, www.salrom.ro, access date: 08.09.2016