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HALOTHERAPY: FROM ETHNOSCIENCE TO SCIENTIFIC EXPLANATIONS

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Abstract

This article presents the use of salt water springs in the Moldavian Oriental sub-Carpathians for treating certain diseases, based on archaeological discoveries and ethnographical surveys, correlated with known facts from the literature in the field. Nevertheless, what differentiates it from other similar area in Europe is the intense, unexpected continuity of traditional, nonindustrial water supplying coming from salt springs. Among the uses of salt water and halite in the area, they are mentioned numerous traditional halotherapeutic practices. The Greek, Latin and current halotherapeutic practices in the East of Romania are evidence of an authentic ethnoscience acquired by human communities with salt outcrops and salt springs. The analysis of these practices demonstrates their scientific validity from the current biochemical and biophysical perspective (NaCl aerosols and of NaCl nanodispersion). Parts of these practices are taken over by a series of recent halotherapeutic proceedings, with reliable scientific and technological bases.

Key words: ethnoscience, Greek and Latin texts, halite, halotherapy, salt springs

1. Introduction

The halite deposits in Moldavia are the largest in Europe and they are distributed on a North – South axis of the sub-Carpathian Unit. In many areas they are close to the surface, as anticlinal or synclinal structures, forming salt massifs. There are 53 salt deposits on a 300 km length. They lie on 2-5 km and are up to 5 km thick. The salt deposits at Tg. Ocna-Slănic Moldova in the South and the one at Cacica in the North are industrially exploited (Stoica and Gherasie, 1981). In parallel, many of the village or even city inhabitants exploit salt water springs for domestic uses.

The salt excavation in the area (which includes today the departments of Suceava, Bacău, Neamț and Vrancea) has been mentioned in historical documents since the 14th-15th Centuries (Stoica, 2003; Vitcu, 1987). Nevertheless, the salt had been exploited for a long time, since prehistory, as brine, coming from salt water springs.

In the Moldavian sub-Carpathian area (with a high demographic density), there are almost 200 salt water springs on valleys of creeks and rivers. Their role in implementing and developing human habitation, starting with prehistory, was studied in the geographical and historical Romanian literature starting with the 1950s (Dumitroaia, 1987; Şandru, 1952; Şandru, 1961; Ursulescu, 1977; Weller and Dumitroaia, 2005; Weller et al., 2007a, b). After 2000, a remarkable intensification of studies in the field has been ascertained. What differentiates it from other similar areas in Europe is the intense, unexpected continuity of traditional, nonindustrial water supplying coming from salt water springs, in the cities and also in the villages. There are traditional behaviors specific to the Moldavian sub-Carpathian areas, where it was found the oldest evidence of salt exploitation in Europe and maybe in the entire world. The existence of these traditions is a great opportunity for complex ethno-archaeological researches, emphasized by a Romanian team even since 1992

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(Alexianu et al., 1992). The ethnographical researches are doubled by ethno-historical researches upon the texts referring to salt from Greek and Latin ancient authors. This served for detecting certain trans-spatial and trans-chronological constants of human behavior concerning the salt. The ethnographical surveys in Moldavia emphasized – besides other aspects – a great number of traditional halotherapeutic practices. One purpose of this article is to emphasize the concordances and similitude between the ancient Greek and Latin authors and the contemporary halotherapeutic practices in Moldavia. The other purpose is to examine the validity of these practices and their preservation to this day.

2. Historiographic data and recent studies regarding the salt water springs in the Oriental Sub-Carpathians

The discovery of an Eneolithic tell at Poduri (the department of Bacău) in an area rich in salt water springs determined a group de archaeologists to initiate researches regarding the possible relations between these springs and the inhabitation complexes in this tell (Monah et al., 1980; Monah et al., 2003). The importance of the saliferous sub-Carpathian Moldavian area for the multiple development of the famous Cucuteni-Tripolye Eneolithic complex was stressed by the American researcher Linda Ellis (1984) in a memorable quote. It reads as follows: „It is also no accident that the longest area of occupation for the Cucuteni-Tripolye culture (*i.e.* the Eastern Carpathians and sub-Carpathians) happens to be a region noted for one of the largest salt formations in Eastern Europe. Exploitation of, control over, and trading of this essential resource no doubt contributed to the stability of Cucuteni-Tripolye village life in the face of culture contact with Eastern steppe pastoralists, as well as enhancing the quality of food, storage, food consumption, and animal and human health". Taking into account that the archaeological data looked promising, mainly concerning their antiquity, the problematic of exploiting the Moldavian salt water springs was taken over and studied within international research programs. Among these, it may be mentioned the following: two projects between UK and Romania: *Research on Trade and Exchange in the Cucuteni-Tripolye Network* from 2001 until 2005, and *Prehistoric Salt Exploitation in Romania and Anatolia* from 2002 until 2005; two projects between France and Romania: *Aux origines de la production du sel en Europe: préhistoire et écologie des Carpates Orientales* from 2003 until 2004 and, starting with 2004 *Les eaux salées de la Moldavie roumaine: archéologie, histoire et écologie d'une ressource structurante du territoire*). What differentiates this sub-Carpathian Moldavian area from other similar area in Europe is the intense, unexpected continuity of traditional, nonindustrial water supplying coming from salt water springs, in the cities and also in the villages, with its multiple uses.

As early as 1992, there was a stress (Alexianu et al., 1992) upon the importance of systematic ethnographical research in this place of origin and also original, where there are elements of continuity in the chrono-topic system. The latest data in the field are the subject of the Romanian project called *Salt springs in Moldavia: ethnoarchaeology of a natural polyvalent source*, financed by the National University Research Council in Romania, set for three years (2007-2010) (Alexianu and Weller, 2009).

The first objective of this study is that of identifying the concordances between the current halotherapeutic practices in the East of Romania and those mentioned by the Greek and Latin ancient authors. It must say that the current traditional halotherapeutic practices identified so far (intra-cranial and ear, inter-costal, menstrual and rheumatic neuralgias, flues, dental hygiene, haemostasis, burns, asthma, bronchitis etc.) were mentioned during 2003-2008 surveys by a Franco-Romanian team (Alexianu et al., 2007a and b; Alexianu et al., 2008). They were also identified by individual researchers (Curcă, 2007; Monah, 2008). There are also various halotherapeutic practices in a paper regarding the medical folklore in Moldavia (Ciubotaru, 2005). As regards the ancient halotherapeutic practices, they were analytically studied, having as basis the literature in the field (Gil, 2004; Jouanna, 1994).

3. Ancient therapeutic applications with analogies in the current practices

The comparative study regarding the data obtained after analyzing the ancient texts and the results of the aforementioned ethnographic surveys showed a great diversity in the use of salt. Its uses include it as salty water or brine and solid, as treatment for various diseases, many of the uses still being preserved. It may be said that these practices mentioned in the ancient texts, do not correspond to current practices and vice versa. They shall continue by mentioning only the cases of exact or approximate concordance between the prescriptions in the ancient texts and the current therapeutic practices in the East of Romania (Table 1).

The use of salt for newborns

A complex situation is that of the salt used in case of newborns with a prophylactic and magic purpose or for diseases. In Moldavia there is the tradition of strewing the newborn with salt in order to prevent future diseases, to put salt on the tongue for him to be spared from whammies or, in case of cramps, to apply compresses with warmed salt (Curcă, 2007). In Antiquity, Soranus Ephesianus mentioned strewing the newborn with a certain amount of powdery salt or in combination with honey, oil or in a barley decoction. In the same sense, it may be mentioned a more vague indication regarding strewing newborns with salt in the Old Testament (Monah, 2008).

Table 1. Concordances between antique and modern therapeutic prescription in Romania

Clinical specter	***Diseases at ancient authors***	***Treatment method at ancient authors***	***References***	***Diseases mentioned during the ethnographic surveys in Moldavia***	***Treatment method in the ethnographic surveys***
Dental diseases	Dental pain	Not mentioned	Aristotle, Problemata, I, 38	Dental diseases in general	Rubbing the teeth with halite
		Stanching with vinegar or liniment with resin	Plinius, Naturalis Historia, XXXI, XLV(9), 105		
	Anti-caries	Small crystal salt held under the tongue until dissolved	Plinius, Naturalis Historia, XXXI, XLV(9), 101		
Gingival diseases	Tumefaction of the gums	Rubbing the tumefied gums with salt	Plinius, Naturalis Historia, XXXI, XLV(9), 100	Tumefaction of the gums	Rubbing with halite or rinsing the mouth with salt water and vinegar
Headaches	Migraines	Not mentioned	Plinius, Naturalis Historia, XXXI, XLV(9), 98	Headaches	Applying on the painful area pouches with potato slices and salt
				Migraines and cephalalgia manifested through dizziness or general indisposition	Warmed halite or rubbing with salt water; Warming the salt rock or salt water for more therapeutic effects
Skin burnings	Burnings	Applying a combination of oil and salt	Plinius, Naturalis Historia, XXXI, XLV(9), 103	Superficial skin burnings	Combination of oil and salt
				Deep burnings	Dispersions of honey and salt or propolis with salt
Amygdalitis	Amygdalitis	Combination of salt and honey	Plinius, Naturalis Historia, XXXI, XLV(9), 101	Amygdalitis	Gargle with salt water; crushed onion or cabbage leaf and grinded horse radish with salt and warmed, combination of warmed polenta and halite or rubbing the amygdales with the finger full of salt
Amygdalitis	Child amygdalitis	Rubbing the amygdales with salt and olive oil	Soranos of Ephesus, II, 19, 1-15	Amygdalitis	External rubbing in the amygdales area with warmed vinegar and salt, in Bacău dispersions of salt in red earth oil of Câmpeni or burning oil
Anginas	Anginas	Combination of salt, oil and vinegar	Plinius, *Naturalis Historia*, XXXI,XLV(9), 101	Anginas	Hot compresses with polenta and salt
Furuncles, inflammations of the skin and dermatosis	Furuncles, lichens, psoriasis	Combination of plums without core, ox suet, marjoram	Plinius, *Naturalis Historia*, XXXI, XLV(9), 101	Itchiness	Salt or dispersions of salt in red earth oil of Câmpeni as abstergent
	Inflammations	Rubbing with salt and vinegar	Aristotle, *Problemata*, IX, 1	Dermatosis	Rubbing with salt, sometimes also with oil
	Itchiness, scabies, ringworms	Idem	Plinius, *Naturalis Historia*, XXXI, XXXIII, 65	Furuncle	Compresses with salt water and vinegar, ribwort or cabbage leaves with salt, „loam from the rear cart wheel" with salt or warmed salt compresses on the wound
Dog or cat bites	Dog or cat bites	Bandages with salt water	Plinius, *Naturalis Historia*, XXXI, XLIV, 96	Dog or cat bites	Bandages with salt water
Joint pains	Joint pains	Drinking salt water	Plinius, Naturalis Historia, XXXI, XXXIII, 64	Joint pains	In some Moldavian villages with salt water springs people indicate treating joint pains with local applications of warmed salt water, mostly for aged people.
Lumbar and leg pains	Lumbar and leg pains after effort	Spluttering with warmed sea water and vinegar	Hippocrates Epidemiai, V, LVIII, 2	Lumbar and leg pains provoked by inflammations	Baths with salty water or local application of a piece of hare skin with warmed salt
Kidney and stomach pains	Kidney pains	Bandages with salt water	Plinius, Naturalis Historia, XXXI, XLV (9), 102	Stomach pains	Rubbing the hands, feet and temples with warmed halite or salt

	Stomach pains	Ingestion of salt and bread	Horatius, Satirae, II, 16-18	Kidney pains	Local applications of pouches with warmed salt or rubbing with salt water
Mouth and ear diseases	Mouth and ear diseases	Not mentioned	Plinius, *Naturalis Historia*, XXXI, XLIV, 97	Mouth and ear diseases	Pouches with warmed halite of the painful areas
Frostbites	Frostbites	Salt is recommended for frostbites, but "before ulceration".	Plinius, Naturalis Historia, XXXI, XXXIII, 65	Frostbites	Salt water baths
					Warmed salt cabbage juice, both before ulceration
Haemostasis	In case of breaking blood vessel in the head	Strewing with table salt	Hippocrates, *Affectiones*, II, 2, XVIII (VII), 1-2	Haemostasis	Compresses with vinegar and salt and salted red wine
					Red wine with copper fallings
				Nose haemorrhage	Salt water infusions in the nostrils
				Haemostasis for open wounds	Strewing salt and sugar

The present ethnographic study was managed to identify around 20 diseases for which the salt rock or brine is used, as such or in combination with other substances. In numerous cases a perfect correspondence can be found between the prescriptions of the ancient authors and the information offered by the Moldavian participants at the surveys, who have kept these practices unaltered for generations.

4. The scientific base of modern halotherapy

The other important objective of this study is to present the validity of the ancient and current corresponding practices, analyzed from the scientific perspective of biochemistry and biophysics. The continuation of ancient halotherapeutic practices in the Moldavian rural area proves that there is here a true ethnoscience in the field. Simple people in the rural areas know the beneficial effects of salt in order to treat certain diseases, without being interested in offering scientific explanations for them.

5. The therapy with halite and salt water from the springs

The use of halite and brine in various therapies, as such or as powders and solutions (natural or artificial salt water) in ancient times and in the current traditional areas or as modern solutions (pomades, tooth pastes, soap, sticks etc.) has a scientific explanation through the properties of nanostructures. These nanostructures may be dissolved or dispersed in the use systems, and are usually presented as solions, which act through osmotic processes upon the recovery mechanisms of the dysfunctions. This process begins at the cellular level for the surface anatomic systems and may go up to more specific metabolic processes. Salt presents a series of actions in the organism, according to the concentration level in the biotic system, to its mineral composition, to its retention and elimination capacity and to the coagulating capacity of gelling systems. The actions of the salt also depend on its antibacterial, antimicrobial or even antimycotic capacity. This is the way to explain, besides the therapeutic action, the various uses in food conservation (Chervinskaya, 2007; Hedman et al., 2006; Sandu et al., 2002; Sandu et al., 2003; Sandu et al., 2006). More details concerning these actions may be found below:

– action on the nervous system through the electrolytic effect upon the myelin and the nerve nucleus, reducing the pain (dental diseases, neuralgias etc.);

– action upon the mucosae, hidden areas (salivary glands, middle and internal ear, the sinus cavity, the gingival zone, the oral cavity etc.) and those altered by the microbiotic systems, physical lesions (traumatisms, stings, bites, cuts etc.). There are also chemical and radiative actions of the salt through the solubleness, drainage and antibiotic electrolytic effect of toxins and antigens, directed through the lymphatic system and eliminated through urine. As consequence, they blot out the effect of microbiologic, radiative and chemical contaminants of the putrefaction processes, burnings/sunburns (furuncles, dermatoses, gingival diseases);

– antimicrobial actions in case of amygdalitis, sinusitis and otitis, as well as infections after bites, stings etc. Through the astringent effect and stopping their metabolism, as well as through increasing the efficiency of the leukocytic system;

– the salt has the antagonist role of the rheumatic processes upon the VSH, for a moderation of the processes within the sanguine cycle;

– through the coagulation effect upon some components of the sanguine plasma and upon certain antigens, as well as through stimulating the specific antibodies. Thus, it increases their efficiency in the fight with the proteins produced by the bacteria and the viruses or the degraded, toxic bacteria;

– through the coagulation process, the haemostatic action may be explained.

The ethnographic surveys mention the fact that most of the remedies applied for treatments, in case of cataplasms, such of pouches with salt and even thin strata of salt, should be warmed to a optimal temperature for the human body (around 50-60 degrees Celsius). Usually, the users do not think about the thermal effect. It is true that the thermal shock produces certain improvements, but only during the application. Thus, the curative effect is

mostly due to the aeroions emanated by the salt, inhaled up to the lungs, achieving a series of actions upon the mucosae through osmosis at the skin level. It also activates the defence systems, such as the leukocytic system, it stimulates the formation of antibodies and it improves the biochemical processes with a pathologic potential. In this sense, the nanostructural NaCl aeroions play the multiple role of the antigen at the level of certain organs, producing most of the previously mentioned effects (Chervinskaya, 2007; Hedman et al., 2006; Poryadin et al. 2002; Sandu et al., 2002; Sandu et al., 2003; Sandu et al., 2006)

Another application which needs to be explained regarding the therapeutic role is that of the fine dispersions of salt having as basis vinegar, wine and oil. It is known that the degree of solubility and of certain crystal solvates, formed *in situ* in a dispersed system, depends on the pH (especially the acid one). It also depends on the presence of foreign ions, on the temperature and on other factors leading to the formation of certain nanostructural solvated aggregates of negative aeroions, which act through specific antigen inorganic biochemical mechanisms, stimulating the improvement of certain pathologies. Oil, as well as wine and vinegar, create a mild acid pH and favour the specific nanostructuration of the crystallites with superficial negative charge, capable of osmotic processes through the membranous systems of internal organs. Moreover, we know several applications, such as: backaches, stomach, liver and pancreas aches. These applications are added, in combination with vinegar and wine, to the sodium chloride and to a small quantity of bronze or copper falling, and are consumed after decanting. Nevertheless, we do not have enough explanations for these applications (Poryadin et al., 2002).

6. Halotherapy with aerosol

The massive use of halite as rocks, crystals, powder or solutions (brines) and of the natural gas systems with NaCl aerosols (maritime environments or salt mines) with various therapeutic purposes led to a creation of certain devices or installations. It also led to the elaboration of certain proceedings de generating nanostructured aerosols, dry or humid, with high therapeutic activity and with possibilities of in situ treatment in habitats (Chervinskaya and Zilber, 1995; Chervinskaya, 2007; Pascu, 2003a; Hedman, et al., 2006; Pascu, 2008; Sandu et al., 2003; Sandu et al., 2004a and b; Poryadin et al., 2002). These proceedings are a reconstruction of the principle of the treatment system through saline halochambers, known in Romania and in many other countries in the world (Chervinskaya, 2007; Sandu et al., 2006).

In many ancient documents there is a description of the effect of salt taste in chambers where the salt is deposited and its benefits in halotherapy, transmitted from generation to generation (Sandu et al., 2006). The Romanian documents in the 17th-18th Centuries indicate the fact that the exploitation of salt in the Târgu Ocna saline was done in huge bell-shaped chambers (Stoica, 2003). Even though there are not documents attesting it, it is certain the beneficial NaCl aerosols observed in the chambers. Nowadays, the microclimate in the IX horizon, situated at about 280 m in depth, of the Târgu Ocna mine is used to treat the chronic respiratory diseases, mainly asthma and chronic bronchitis.

The old Romanian practices allowed certain researchers to brevet devices generating dry or humid aerosols, used in the in situ treatment of certain lung diseases or in getting the habitats ecologic (Pascu, 2003a and b, 2006, 2007 and 2008). They were taken and tested in laboratories (Sandu et al., 2003; 2004a and b) and in phtisiologic studies, where, from the perspective of the biochemical and biophysical in vivo conditions, their therapeutic effect on the lungs was confirmed (Chervinskaya, 2007; Hedman et al., 2006).

A part of the studies (Sandu et al., 2003; 2004a; b) emphasized the behaviour of the NaCl nanostructural dry aerosols, in halochambers, where it was observed the existence of three zones. The first is the active zone (near the source) – characterized by a great concentration, where there are all four dimensional groups of particles (Aitken – under 0,05 μm; submicron – 0.05 and 0.1 μm; micron – 0.1 - 1 μm and giant, over 1 μm). The second is the diffuse zone (in the volume phase of the halo-chamber, la of a rather big distance from the source), extended and characterised by a dynamic state of the distribution of the dimensional field and of the lifetime, having all the parameters in a continuous evolution/variation. The third is the residual or passive zone (when leaving the halo-chamber), characterised by a small concentration, usually uniform, a stationary state of the distribution of the dimensional field and of the lifetime. In the three zones there are different processes, with singular or cumulative, competitive or non-competitive effects in the stabilization-destabilization processes, such as those of: nucleation, condensation, coagulation, lyophilisation, peptization, sedimentation etc. They are co-assisted by hydration–dehydration processes of the nanoparticles, in the kinetics of which a special role is played by the sterical and the electrostatic effects, the latter being dominant. The behaviour of the NaCl nanoparticles in active anhydrous state is different from the hydrated one in the zones of the halo-chamber.

The technical literature after 2000 is full of studies and researches as regards obtaining and characterising the behaviour of NaCl nanoparticles in in vitro and in vivo systems, as active principles for therapeutic halo-chambers. They allow the achievement of over 80 percent breathable NaCl dry aerosols nanoparticles and they behave as “bronchial brushes” for the respiratory tracts and as moderators of the lung membranes’ dynamics (Alfoldy et al., 2002; Chervinskaya, 2007; Hedman et al., 2006; Poryadin et al., 2002).

Through the involvement of other salts ($CaCl_2$, $MgCl_2$ and the iodide anions) as negative aeroions in the halo-chambers, the applicability extends to other treatments. Among them, it can mention the following: thyroidal, hypothalamus diseases, calcium deficits etc. By associating these treatments with galvanic, diadynamic baths, electrodiaflux etc., there is a great increase in their efficiency (Sandu et al., 2002; 2006).

The action mechanisms of the dry NaCl nanoparticles at the level of the pulmonary membranes and of the mucociliary system take place by direct and inverse osmosis and by ionic change process, with a revitalizing and cleansing effect. Halotherapy, through this type of aerosols, has high efficiency for patients with chronic lung diseases. The controlled placebo studies have shown that the inclusion of halotherapy in the rehabilitation course of patients with pulmonary pathology allows achieving the maximal therapeutic effect. This happens for 82-96 percent of the patients along with the optimal use of pharmacotherapy. The stronger positive effect is seen in case of numerous patients suffering from: mild asthma – 83%, moderate asthma – 83%, severe asthma – 67%, chronic obstructive pulmonary diseases – 91%, simple bronchitis – 95%, acute bronchitis – 93%, pneumonia – 82%, pneumoconiosis – 96%, pollinosis – 81%, chronic rhinitis and sinusitis – 85%, chronic pharyngitis and laryngeal tracheitis – 71% and even skin diseases – 61% (Alfoldy et al., 2002; Chervinskaya and Zilber, 1995; Chervinskaya, 2007; Hedman et al., 2006; Poryadin et al., 2002).

The modern applications of dry NaCl aerosols are the following:

- obtaining ecological microclimates in a habitat through controlled air purification by de-stabilizing the toxic smoke into powders and positive aeroions (through electro-neutralization and extinction);
- the cleansing and anti-inflammable effect on the respiratory system;
- the decrease in the inflammation of the respiratory tract, based on more alveolar macrophages and on the stimulation of local immune response, as well as on the improvement of biocoenosis (removal of pathogenic agents, speed-up of mucociliary transport and abatement of bronchial inflammation);
- the decrease or disappearance of lung diseases' symptoms in the pulmonary system;
- the prevention of common cold, hay fever or certain skin diseases;
- the prevention and restorative treatment of pulmonary diseases;
- the elimination of the airborne pollen particles, cigarette smoke particles from airways (leading to a decrease in the allergic reaction to pollens and positive aeroions);
- improving the activity of skin cell ion channels and stimulating the electrophysiological activity that determines skin protective properties;
- normalizing the skin composition, improving the bacteriostatic, anti-oedematous and anti-inflammatory effect.

The advantages of the dry NaCl aeroions are: the scientific basis of the action mechanisms, high efficiency, adaptation to diverse medical and health improving approaches, no invasiveness, no side effects, comfort and convenience, combined with relaxation, removal of physical and psychic emotional discomforts, novelty and attractiveness for the patients. Dry NaCl aeroions also bring natural medicine-free treatment of respiratory and skin problems, cleansing and sanitation of the airways, enhancement of airways' defence mechanisms, an improvement in the biological and immune host defence mechanism and a decrease in the base medication load.

There are two types of beneficial effects: *physical* and *mental*.

The physical effect can be obtained by people with the following discomforts: chronic pulmonary diseases (asthma, chronic obstructive pulmonary diseases, pneumonia, bronchitis, cystic fibrosis); allergies with an effect on ear, nose, throat, sinuses (e.g. hay fever); ENT-diseases (rhinitis, sinusitis, pharyngitis, laryngitis); common cold; respiratory discomfort from harmful airborne and tobacco smoke particles; dermatological disorders (acne, neuro-dermatitis, psoriasis, cellulite); heart and vascular problems (especially in combination with lung diseases); vegetative nervous system disorders; inability to loose fat tissue due to disturbed metabolism.

The mental effects can be obtained by people with the following discomforts: chronicle fatigue, overstrain and exhaustion, depression, low stress resistance, quitting smoking.

7. Conclusions

Through the comparative analysis of the ancient literary sources in the Mediterranean area and of the ethnographic information, it was shown that the validity of the prescriptions indicated by the ancient authors referring to the medicine based upon salt is partially confirmed by the fact that the halotherapeutic practices still exist in Moldavia today. This validity is also confirmed through the biochemical scientific analysis of these practices, which constitutes an important part of the ethnoscience in case of ancient authors and current users in Moldavia.

In some cases, very recent proceedings, patented as inventions, continue the ancient and current traditional halotherapeutic practices in the East of Romania. Thus, it must admit that, besides the well-known role of salt in nutrition and food conservation (the latter was essential before the refrigeration era) the salt also has a great therapeutic role.

Since it is know for sure that there are no contacts between the current traditional users of salt/salt water with therapeutic purposes and the works of the ancient authors, trans-chronological and trans-spatial concordances are aspects to deal with.

These constants were demonstrated for spaces with no cultural contacts (since the East of Romania was not included in the Roman Empire) and for periods separated by two thousands years.

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