

MEDEA AND ARGONAUTICS: MEDICINE, PHARMACY, TOXICOLOGY

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ABSTRACT

According to mythical heritage, Medea, a daughter of the king of Colchis (Western Georgia, 13th century BC), famous for her beauty, was very wise and closely associated with plant lore, concoction of medicines, and medical activities. She knew various forms of remedies for internal and external use, respiratory, and so forth. In her therapeutic arsenal, there were medical remedies for a variety of uses: for treatment of various diseases, soporifics, poisons, ointments, miraculous and magical substances as well.

Medea prepared the poisons by using special processing of medical remedies – extraction, infusion/tincture, thermal, mechanical, or chemical exposure, or concentration. The principle, according to which the modern medicine is developing, is *contraria contrariis curantur* (CCC), or contraries are cured, or allopathic medicine. At present, the priority still belongs to CCC. This is the direction that modern medicine and pharmacy throughout the world are following today.

The way of effective realization of this principle is a strong chemical source. The stronger the source, the more effective the result. This thesis is based on two major ways of realization of the CCC principle – suppressing and compensating therapy where achieving an effect without a potent substance would not be possible.

Toxicology and pharmacy were formed in the Roman Empire at the beginning of our era and are associated with the King of Pontus, a descendant of Colchis – Mithridates VI Eupator. Such a notion as the medicine/drug appeared in the Roman period. The authors do not describe the plant, animal or mineral resources but the product – the characteristics of the drug.

Thus, Medea is not only considered a pioneer of cosmetics, hematology, surgery, toxicology, and other areas but also the founder of the way

for effective implementation of the main principle of modern medicine and the donor of word root *medicine*. Afterwards, the term acquired a broader generalization and consequently become a synonym of medical art.

Keywords: *Medea; Colchis; history of medicine; pharmacy; toxicology*

INTRODUCTION

Archaeological studies of the middle of the third millennium BC in the Caucasus and northern Anatolia confirm the existence of the impressive culture of Kura-Arras, while, from the second millennium, and more locally, the brilliant Trialeti culture can be found. Around the same period, historical sources mention the unions of Diaokhi/Diaoxi and Kolkh/Colchis on the Anatolian Peninsula and to the north of it. Taking into consideration the cultural, religious, linguistic and other aspects, these areas can be called Georgian or at least proto-Georgian countries. Indeed, all of them form a single ethno-cultural area. When referring to Colchians and Iberians, no fundamental difference between the two national names is implied, and studies, both historical and modern, can often equate the national origins completely.

In his famous five-volume medical-historical work *Versuch einer Pragmatischen Geschichte der Arzneykunde* (1821), Kurt-Joachim Sprengel (1766–1833) described the traditions of different countries with descriptions of Colchic medicine followed by a review of Phoenician, Carthaginian, Egyptian, Babylonian, Indian and other medical traditions. Sprengel's contemporaries were not aware of the details and even the cultural artefacts of Mesopotamian culture. However, subsequent discoveries not only rejected Sprengel's approach but, backed up by serious analysis, expanded the area of the Colchis-Iberian culture. Indeed, the existence of Kolkhain in the XIV–XII centuries BC to the south and east line of the Black Sea has been proved.

It seems that the rich kingdom of Colchis was under the rule of King Aetes in the same period, as the well-known Greek myth of the Argonauts indicated. He lived in the capital city known as Aia and, according to some sources, the country was also called Aia or Ea. Aetes had a fabulous treasure – the Golden Fleece, the golden wool of a flying ram, which was considered to be a symbol of divine wisdom. Some commentators believe that Aetes had written a number of secrets or mysteries on ram's wool in the form of books where medical wisdom was also mentioned. It is difficult to separate allegory and real facts, but the facts may be linked to real events in some way.

For example, the myth describes copper-hoofed bulls who shot fire from their mouths. Jason, who was ordered to yoke the bulls, used his mastery in metal from Medea, where the wisdom of Colchis could be identified. Using the text of the myth as well as archaeological evidence, it is clear that Colchis had highly developed agriculture and cattle husbandry.

Naturally, the problems of life and death would be an area of concern for people of such a culture, and this would be closely related to health, pathology and treatment. Many archaeological finds demonstrate that, at that time, the art of treatment existed in Colchis, even having the image of a snake as its professional logo. Among these materials, there were personal hygiene items, kitchen utensils for different purposes and so on. According to the myth, the young and beautiful Medea, a daughter of the king of Colchis, was very wise and was closely associated with plant lore, the concoction of medicines, and other medical activities. She knew various remedies for both internal and external use, including ointments and treatments for poisons, inducing sleep besides some magical and miraculous cures.

The text of the Argonauts story says that she used to wander at nights in the copses near the temple looking for plants for treatments. The amazing medical miracles, attributed to Medea by Apollonius of Rhodes, the author of the *Argonautica*, while allegorical, are undoubtedly based on reality. Medea was skilled in the quick and effective treatment of wounds. “Medea healed (the Argonauts wounded in a battle with the Colchians) with special herbs and roots in a few days” (Diodorus Siculus). She was able to treat sterility as well. She told the king of Athens that his sterility would be at an end. “Still, you do not know by what chance you came to me. I know the medicine against sterility.”

She was familiar with cosmetics as well. The discovery of hair colouring is attributed to her as are the secrets of skin care. Medea “rubbed and healed her skin, irritated due to clogged tears, with the sweet nectar oil.” In her medical practice the woman healer practiced blood transfusion as well using a lamb as a donor. This procedure was carried out on Pelias, Jason’s uncle. The story is quoted from Academician I. Kasirski:

“Medea took her unsheathed knife and cut the old man’s throat letting all of his blood out of him. She filled his ancient veins with a rich elixir. Received through his lips and wound, his beard and hair no longer white with age, turned quickly to their natural vigour, dark and lustrous; his wasted form renewed, appeared in all the vigour of bright youth.”

There are many early documented literary and other references indicating that Colchis of those times was famous for the teaching about the poisons and toxic substances. Expeditions aimed at the study of traditional medicine in all regions of Georgia have revealed that in present-day West Georgia, especially in the Samegrelo area, there are many experts, not to mention folk healers, who are acquainted with all aspects of poisons. Knowing the diverse effects of these poisons – sudden, long-term and disease-causing – is a form of secret knowledge which must have been passed down from generation to generation.

Evidently, there is a basis of esoteric knowledge which is preserved in the population. In today's Colchis, the ethnological material is of great interest. It was not without reason that Rudolf Steiner called Colchis the country of mysteries. Medea's aunt Hecate was also closely associated with plant lore and well-educated in the medical art. She was the sister of the King, so we can understand the interest of the Kingdom of Colchis in medical knowledge and the priority given to it. This tradition has continued in later periods as well. In this regard, similarities can be found only in Chinese medicine.

Medea's lore is quite comprehensive (Dinos, 1st century, B.C.):

“When Jason decides to marry the daughter of Glaucus Creon, indignant Medea sent them poisonous clothes as a wedding gift, because of which his new wife died in terrible pain.” “Medea sent to Lycomedes and his father Creon the clothes, saturated with invisible poisons, to kill them in terrible pain (rending their bodies).”

Medea possessed such skills that, in the literature, her poisons were mentioned with specific names, such as “Medea”, “One Day”, “Iris”, “Colchis” and many others. However, her name is not associated with poisons only. In a drama by Sophocles, when Zeus lost his spiritual and physical energies and was exhausted due to frequent earthly contacts, Ganymede restored his powers with a divine drink called “Medea”.

Almost all the main plants of Hecate's (Medea's) garden are well-known today, although some of the most important ones have remained unknown. It is evident that Medea prepared the poisons by using the special processes of extraction, infusion/tincture, thermal, mechanical or chemical exposure, or concentration. The principle according to which modern medicine is developing is *contraria contrariis curantur* (CCC) – that contraries heal. This is the principle of allopathic medicine as opposed to homeopathy. The stronger the therapeutic source the more effective the result. This thesis is based on two major ways of realization of the CCC principle – suppressing and compen-

sating therapy where getting an effect without a potent substance would not be possible.

This theory had not been discovered before the era of Medea. In oriental medicine, allopathic medicine is not dominant. It rather originates from Greco-Roman medicine the roots of which lie in the common Mediterranean-Pelagic and Colchis-Iberian medicine. The *Argonautica* serves as a text proving this. Medea is described as rubbing her face, irritated with tears, with a healing ointment or balsam, filling the old man's body and veins with lamb's blood for rejuvenation, dying grey hair into black with herbs and so on. In Medea's family, traditional medical practice was considered the prerogative of women. Possession of the healing art has been a priority for women both in Medea's times and throughout history.

Hecate's garden contained medicinal plants. As we have seen, medical remedies were produced at the Royal Court of Aetes, but Medea's were especially famous. At first, the finding of healing properties in many new plants/herbs was followed by extracting the active ingredient from these herbs and the preparation of the concentrate for medicines, known in Georgian as 'the poison'. Perhaps, this is how the relationship between poison and medicine developed in the Georgian language. Thus, in the Georgian *Karabadins* (Medical Handbook), special chapters are devoted to the 'poisons' not for poisoning but for healing. Thus, for obtaining effective results according to the CCC theory, medicine dilution was necessary. As Paracelsus said, "All medicines are poison and vice versa, the difference between a poison and a remedy is the dose." Medea was aware of this knowledge, but "due to the inclination, she used them differently", indicating her understanding how to match the drug and the patient.

Medea could draw the line of between the *Dosa Letalis Minima* and the *Dosa Therapeutica* in the same substances. According to the legend, Medea put the dragon to sleep with her "magic herbs". This, certainly, is a myth, although informative. Apparently, Medea knew about the existence of toxins and how to produce "magic treatments" which induce "mental insanity" as well. According to Nicander, the Greek physician from Colophon, this therapy is a root or even a plant to be prepared together with kerosene.

It would be nice to think that the word 'medicine' originates from Medea, in the way that hygiene derives from Hygeia and panacea from Panacea. However, it was the Romans rather than the Greeks who coined the term 'medicine'. Medea is seen as an outsider among the Greeks and a rebel against her former husband Jason, her family and almost the whole of Greece.

Medea's children were killed. She uses her knowledge only for revenge. Naturally, she would not share her special knowledge with anybody. Despite the high level of the Hellenistic healing art, the ancient processing of medical remedies is limited and primitive. Thus, Medea's medicine, the production of the poison (concentrate) and its further conversion into the active drug is poorly developed in Greece. Therefore, in the writings of Hippocrates, there is an emphasis on diet, lifestyle, seeking the right climatic conditions and recognizing constitutional types. It should also be noted that the theory of the humours is central to Hellenic Medical Art.

Pliny tells about Mithridates of Pontus (2nd century BC) who, according to the reliable sources was the king of the Colchis-Iberian tribes:

“Mithridates had tried to make away with himself, and after first removing his wives and remaining children by poison, he had swallowed all that was left; yet neither by that means nor by the sword was he able to perish by his own hands. For the poison, although deadly, did not prevail over him, since he had inured his constitution to it, taking precautionary antidotes in large doses every day; and the force of the sword blow was lessened on account of the weakness of his hand, caused by his age and present misfortunes, and as a result of taking the poison, whatever it was. When, therefore, he failed to take his life through his own efforts and seemed to linger beyond the proper time, those whom he had sent against his son fell upon him and hastened his end with their swords and spears.”

The need for improved processing of natural resources (vegetable/plant, animal, mineral) may owe much to Mithridates VI. He had a long-term relationship of enmity and confrontation with Rome. Finally, Pompey defeated Mithridates, entering the Palace and removing his library to Rome where many medical volumes were stored. The authorship of most of these books is attributed to Mithridates himself, and his “Mithridatium” was recognized as a panacea and an antidote all over the world.

According to Kurt Joachim Sprengel, “Treatment by Medea” was known as “Cura Mediana” and served as one of the origins of modern medicine. Dioscorides (c. 40–90 AD) of Anazarba, today in southern Turkey, where only Iberian and Hellenic tribes lived at that time, wrote his *Materia Medica*, which contains hundreds of plant, animal and mineral therapies. This work is often considered to be the first steps in the development of pharmacy.

Watson noted that the Mediterranean world and the surrounding area became a single cultural-political unit under the Roman Empire where the culture was Greek, or rather, Hellenic, but the political unity was based on

military power of the Romans. In the Roman Empire of that time, Asia Minor occupied an important place where the Georgian and Armenian population had a significant share. The Greek language held a dominant position, but works in other languages were translated into Greek and spread round the civilized world. Georgian cultural centres were established outside Georgia, such as the Iberian monastery on Mount Athos, the Georgian presence in Jerusalem and the Petritsoni Monastery in Bulgaria. Many authors could be found in Asia Minor, for example, Asclepiades from Bithynia, Heras from Cappadocia and Galen from Pergamum. Georgian tribes were settled in these provinces, especially in Cappadocia, and Galen had a direct connection to this world. In addition, Galen described the differing viewpoints of various authors in connection with the definitions of the antidote, theriac, considering what are the antidotes and the range of poisons whose effects must be counteracted. This argument indicates that, according to the notion of active substance and concentration, toxicology and pharmacy were formed in the Roman Empire at the beginning of our era and are associated with the King of Pontus and descendant of Colchis Mithridates VI Eupator. The authors do not describe just the plant, animal or mineral but the product drug and its characteristics.

COLCHIS AND MEDICINE IN LITERATURE

In the twelve centuries between the times of Medea and Mithridates, we might expect to find much information in literary sources related to Georgia (Colchis and later – Iberia). This is especially observed during the Greek classical period when Hellenistic culture becomes predominantly literate.

In his *Anabasis*, Xenophon (431–354 BC), the Greek commander-in-chief and historian, wrote about Georgian medicine and the country's life in general. He saw that a local people, the Mossynoikoi, stored dolphin meat and oil in drums. Strabo confirmed this observation noting that they used fish oil for various purposes. Thus, it may be assumed that the history of using fish oil as a food and material with unique healing properties originated in Colchis.

The Roman author Claudius (c. 395 BC) wrote about the natural resources of the Caucasus in the following way:

“I am well aware of juices of various plants and the actions of those death plants that grow in the Caucasus, known for its abundant poisonous plants.”

The Pseudo-Plutarch¹ writings provide interesting information about the medicinal plant called “poplar” which is “collected early in spring when the Hecate mystery is celebrated”, thus providing a link with healing and health care. Dioscorides, the famous Greek physician (1st century BC), in his work *Materia Medica*, offers the following passage relating to medicinal plants: “One is of strong sweet smell, which grows in Colchis, but the second one, called wild garlic by some, is called ‘Colchici’.

In his work *Naturalis Historia*, Pliny (29–79 AD) wrote that the best root of the iris grows in Colchis. He related the story about snakes that eat fennel seeds to restore and sharpen their vision after they shed their skins. It was concluded that fennel improved eyesight, and the best treatment was prepared in Iberia. Greek authors also describe the ‘Prometheus Herb’, known in Georgian folklore as *Amiranbalakha*, which mythology says came from the blood of Prometheus. It grows only in the Caucasus and is famous for its therapeutic value.

Hippocrates seems to have visited Colchis himself to study local conditions and healing traditions. He described the country, its rich flora and fauna as well as the appearance of the local population and their diseases.

Thus, Medea can be considered a pioneer of cosmetics, haematology, surgery and toxicology leading the way for the development of modern medicine.

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