

Phasis 10 (II), 2007

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### **NEW INFORMATION ABOUT THE PLANTS FROM MEDEA'S GARDEN AND THEIR USE FOR MEDICAL PURPOSES IN TRADITIONAL AND MODERN MEDICINE**

The story of Medea and the Argonauts is eventually unwrapped of its mythological veil. The existence in ancient Colchis (the 13<sup>th</sup>-12<sup>th</sup> centuries) of a garden with healing plants associated with Medea's name was studied as early as by Greek and Roman authors of ancient world.

Later, a German scholar, Ioakhim Kurt Shprengel (1766-1833) started his works about the History of Medicine with a chapter devoted to ancient Colchian medicine. Referring to the sources available (mostly Greek and Roman), he argued that none of the countries but ancient Colchis was known as the initial cradle of world medical culture. Moreover, he regarded the widely admitted medicine of the kingdom of Pontus as the successor to the Colchian medicine. He noted that the origins of the world medicine were rooted in Colchian civilization. Referring to various initial sources, and mostly to the "Orphic Argonautica" by pseudo-Orpheus, he studied the healing plants growing in the kingdom of Pontus, the Caucasus, Iberia and Colchis, namely in Medea's Garden. Having studied medical properties of these plants, he stated that Medea used to prepare various medications, poisons and anti-poisons, which later Mithridates the Eupator, the great king of Pontus, used in his medical practice as remedies against a number of diseases, cases of intoxication and poisoning.<sup>1</sup>

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<sup>1</sup> Sprengel K., *Test Versuch einer pragmatischen Geschichte der Arzneykunder. Zweyter Abschnitt, Alteste Kolchische Medicin*, Halle, 1821, 44-55.

A Georgian scholar and physician, professor Mikheil Shengelia (1916-1999), devoted several researches to the issues on the locality of Medea's Garden, to collecting information about the plants growing therein and about their habitat, as well as to the identification of their names. In his work he analyzed in detail notes and fragments attested in various initial sources, once again pointed to the actual existence of the garden and offered relatively fresh and comprehensive information about the names of 58 plants.<sup>2</sup>

Our studies targeted the following directions:

1. Specify the names of the plants growing in Medea's Garden and identify them;
2. Look for the information about the use of these plants in traditional medicine.
3. Look for the information about the use of these plants in modern medicine.

According to the "Orphic Argonautica", on the garden territory grew 29 species (the work offers a list of these species) and many poisoning herbs (the latter are not listed). The sorceress Medea, with the help of Artemis (Hecate) used to gather here healing herbs.<sup>3</sup>

The "Orphic Argonautica" is translated into Georgian by N. Melashvili. She notes that the author of the "Orphic Argonautica" had perfect knowledge of nature. Having done her best to provide comprehensive comments, the author nevertheless admits that the nomenclature should be studied by experts.<sup>4</sup>

K. Shprengel did not even discuss the first three plants of Medea's garden, and commented on the rest 26 according to the works of Dioscurides, Pliny, Theophrastus and Galen.<sup>5</sup>

M. Shengelia almost shared the idea of identification of these plants; he only completed the plant list with the ones from K. Shprengel's work. He noted that according to K. Shprengel's data, 36 species grew in Medea's garden. However, Ch. D. Kuptsis added 5 more species to the list of the plants growing in Medea's garden. Such inclusion could have been based on various sources, or on the interpretation of the "Orphic Argonautica".<sup>6</sup>

We have put together the results of K. Shprengel and M. Shengelia only with regard to Medea's garden. We found it necessary to present the existing

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<sup>2</sup> Shengelia M., *Ancient Colchian-Iberian Medicine*, Tbilisi, 1979, 203 (in Georgian).

<sup>3</sup> *Orphica*, Rec G. Herminus, Lipsiae, 1805, (916-925), 168-170 (in Greek).

<sup>4</sup> Pseudo-Orpheus, *Argonautica*, Translated by N. Melashvili, Tbilisi, 1977, 39, 123 (in Georgian).

<sup>5</sup> Sprengel K., *Test of Pragmatic History of Medical Art*, Article 2, *Ancient Colchian Medicine*, Halle, 1821, 44-55.

<sup>6</sup> Shengelia M., *Ancient Colchian-Iberian Medicine*, Tbilisi, 1979, 203 (in Georgian).

data side by side, in a single table in order to compare them and venture our own opinion on the definition of particular plants' names.

**The table of the versions to be compared:**

The sequence follows the one in the "Orphic Argonautica"	K. Sprengel's version	M. Shengelia's version	Our version
1. davfnai	1. -	1. Laurus nobilis	1. Laurus nobilis
2. kravneiai	2. -	2. Cornus mas	2. Cornus mas
3. platavnisoi	3. -	3. Platanus occidentalis, P. Orientalis	3. Platanus orientalis
4. ajsfovdelo"	4. Asphodelus ramosus	4. Asphodelus ramosus	4. Asphodeline
5. kluvmenov"	5. Lathyrus clymenum	5. Lathyrus climenum	5. Lathyrus climenum
6. ajdivanto"	6. Adiantum capillus	6. Adiantum capillus	6. Adiantum capillus-veneris
7. qrivon	7. Solanum insanum	7. Solanum insanum, S. dulcamara	7. Solanum dulcamara
8. kivpeiron	8. Cyperus rotundus	8. Cyperus rotundus	8. Cyperus rotundus
9. ajri;serewvn	9. Verbena supina	9. Verbena supina, V. officinalis	9. Verbena officinalis
10. aj-nemwvnh	10. Anemone coronaria	10. Anemona coronaria, A. fascicularis	10. Anemone fasciculata
11. o{rminon	11. Salvia horminum	11. Salvia horminum, S. officinalis	11. Horminum
12. eijrivsi-mon	12. Sisymbrium polyceratum	12. Sisymbrium policeratum. S. irio, S. loeselli, S. officinalis	12. Iris lazica

13. kiklamiJ"	13. <i>Cyclamen hederacifolium</i>	13. <i>Cyclamen europaeum</i> , <i>C. persicum</i> , <i>C. ibericum</i>	13. <i>Cyclamen</i>
14. soicav"	14. <i>Lavandula stoechas</i>	14. <i>Lavandula stoechas</i>	14. <i>Lavandula stoechas</i>
15. paionivh	15. <i>Peonia officinalis</i> , <i>P. corallina</i>	15. <i>Peonia officinalis</i> , <i>P. abchasica</i> , <i>P. tenuifolia</i> , <i>P. caucasica</i> , <i>P. carthalinica</i>	15. <i>Peonia officinalis</i>
16. kavterne"	16. <i>Mentha cervina</i>	16. <i>Mentha aquatica</i> , <i>M. longifolia</i> , <i>M. piperita</i> , <i>M. pulegium</i>	16. We could not determine
17. mandragovrh"	17. <i>Atropa mandragora</i>	17. <i>Mandragora officinalis</i>	17. <i>Mandragora officinalis</i>
18. povliovn	18. <i>Teucrium montanum</i>	18. <i>Teucrium montanum</i> , <i>T. chamaedrus</i> , <i>T. polium</i>	18. <i>Teucrium trapezunticum</i>
19. divktamnon:	19. <i>Origanum dictamnus</i>	19. <i>Origanum dictamnus</i> , <i>O. maiorana</i> , <i>O. vulgare</i>	19. <i>Origanum dictamnus</i>
20. krovko"	20. <i>Crocus</i>	20. <i>Crocus sativus</i> , <i>C. speciosus</i>	20. <i>Crocus sativus</i>
21. kavrdamon:	21. <i>Lepidium sativum</i>	21. <i>Lepidium sativum</i> , <i>L. campestre</i>	21. <i>Elettaria cardamomum</i>
22. kh'mo"	22. <i>Micropus erectus</i>	22. <i>Micropus erectus</i>	22. <i>Micropus erectus</i>
23. smivlax	23. <i>Smilax aspera</i>	23. <i>Smilax aspera</i>	23. <i>Smilax aspera</i>
24. camaivmhlon	24. <i>Matricaria chamomilla</i> , <i>Anthemis nobilis</i> ,	24. <i>Matricaria chamomilla</i> , <i>Anthemis nobilis</i> ,	24. <i>Chamomilla</i>

	Pyrethrum parthenium	Pyrethrum parthenium	
25. mhvkwn	25. Glaucium luteum	25. Glaucium luteum	25. Glaucium
26. ajlkeivh	26. Malva tournefortiana	26. Malva tournefortiana	26. Malva
27. pavnake"	27. Ferula opopanax, Pastinaca lucida, Echinophora tenuifolia	27. Ferula opopanax, F. assafoetida, F. galbaniflua	27. Ferula opopanax
28. kavrpason	28. Valeriana tuberosa	28. Valeriana tuberosa, V. officinalis	28. Carpesium
29. ajkovniton	29. Aconiton cammarum, A. lycocotum, A. ochroleucum	29. Aconitum caucasicum, A. tuscheticum, A. anthora	29. Aconitum orientale

Botanical-systematic and taxonomic study, taking into account ecotopological data, enabled us to trace corrections in past examinations. We identified the names of 28 different plants. As shown in the table, seven plants were identified at the level of genus, twenty-one – at the level of species, and their binary nomenclature was indicated. We have modified the binary nomenclature of five plants, we couldn't agree with description of one plant: in particular, in the "Orphic Argonautica", kavterne" is characterized as having many branches (polivknhmovn), but in a Latin footnote it is presented as a variety (kateivdwlo"), which is a vascular plant (katavdendro") with multiple (multiplicandi) bended down (katav) leaves. Its morphological structure is different from the Mentha kind.<sup>7</sup>

The study revealed that part of those plants is still widespread within as well as outside Georgia. None of them is a Georgian endem, some were brought into Georgia and are cultivated here at present as well, while others

<sup>7</sup> Orphica, 1805, (916-925), 168-170 (In Greek); Dhmtravkh" D., Mevga lexiko;n th" eJllhnikh" glwvssh", V, Aqhvnai, 1939; Hederici B., Lexicon Graeco-Latinum et Latino-Graecum, Romae, MDCCC, XXXII; Pape W., Griechische-Deutsches Bandwörterbuch. Braunschweig, I, 1908; Gagnidze R., Vascular Plants of the Georgian Nomenclatural Catalogue, Tbilisi, 2005, 247.

do not grow in Georgia; they used to be imported from foreign countries and are still imported nowadays.<sup>8</sup>

Medea successfully applied medical plants growing in her garden for the treatment of various diseases, for relieving symptoms or for preventive purposes. According to Greek-Roman sources, Medea used to treat barrenness, psychical diseases, various kinds of wounds, she could relieve pain symptoms. For these purposes, she applied ointments, which she prepared with her own hands, she was skilled in cosmetic manipulations, etc. However, it is not specified which particular plant or combination of plants she used in each particular case.

We attempted to collect information about the use of the plants from Medea's garden in traditional medicine. Such information survived through written records as well as oral tradition.

For this purpose we examined eight Georgian medical manuscripts of the 10<sup>th</sup>-18<sup>th</sup> centuries. Four of them had been studied and published by various authors; we treated the remaining four manuscripts as well and prepared them for publication.<sup>9</sup>

We also studied Georgian medical-ethnological material, which we collected during scientific expeditions. Systematization and analyses showed us that the material includes centuries-old information about healing plants that used to be applied and were approved.<sup>10</sup>

We also collected information from modern medical literature about the remedial properties of the plants from Medea's Garden and evaluated its authenticity.

In compliance with the materials obtained, we grouped the plants into the following categories:

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<sup>8</sup> Makashvili A., Botanical Dictionary, Tbilisi, 1951, 260 (in Georgian); Гроссгейм А., Растительные богатства Кавказа, Москва, 1952, 611; The Flora of Georgia, vol. I-XIV, Tbilisi, 1971-2003 (in Georgian).

<sup>9</sup> Гроссгейм А., Растительные богатства Кавказа, Москва, 1952, 611; The Flora of Georgia, vol. I-XIV, Tbilisi, 1971-2003 (in Georgian); Kananeli, Ustoro Carabadini ('Matchless Medical Book'), Tbilisi, 1997, 665 (in Georgian); Kophili Khoja, Tsigni Saakimoi (Medical Book by Khoja Kopili), Tbilisi, 1936, 381 (in Georgian); Panaskerteli-Tsitsishvili Z., Samkurnalo Tsigni-Carabadini (Medical Book), Tbilisi, 1978, 508 (in Georgian); Bagrationi D., Iadigar Daudi, Tbilisi, 1938, 741 (in Georgian); Georgian Medical Manuscripts:

a) H-414. Carabadini Kargi da Margebeli ('A Medical Handbook, Good and Benevolent'), the 16<sup>th</sup>-17<sup>th</sup> c., 95.

b) H-916 Abram Mtsereli, Carabadini Martali da Cheshmariti ('A Medical Book, True and Authentic'), the 17<sup>th</sup> c., 82.

c) H-3045 Saeqimo Tsigni ('A Medical Book'), the 18<sup>th</sup> c., 221.

d) F 46-6 Azrumeli, Tsnobari ('Reference Book'), the 18<sup>th</sup> c., 55.

<sup>10</sup> Хелаиа Н., Лекарственные растения в грузинских медицинских рукописях XVI-XVIII веков, Киев, 1985, 19.

To the first group were assigned nine different officinal plants. They are thoroughly studied and applied in our national as well as foreign traditional and modern medicine (*Aconitum orientale*, *Carpesium*, *Chamomilla*, *Glaucium*, *Horminum*, *Lavandula stoechas*, *Origanum vulgare*, *Paeonia officinalis*, *Solanum dulcamara*).<sup>11</sup>

The second group includes sixteen different plants, which are studied partially. They are used only in traditional medicine (*Adiantum capillus-veneris*, *Anemone fasciculata*, *Cornus mas*, *Crocus sativus*, *Elletteria cardamomum*, *Cyclamen*, *Cyperus rotundus*, *Ferula opopanax*, *Iris lazika*, *Lathyrus limenum*, *Laurus nobilis*, *Malva*, *Mandragora officinalis*, *Smilax aspera*, *Teucrium trapezunticum*, *Verbena officinalis*).<sup>12</sup>

The third group includes three different plants. We failed to obtain in the sources available any information regarding their healing qualities or their use in the traditional or modern medicine (*Asphodeline*, *Micropus erectus*, *Platanus orientalis*). We believe that the future study of these plants will enable us to make objective conclusion about their reliability and the appropriateness of their use. This will facilitate their thorough and purposeful study, and will point to the necessity either to apply them in Modern Medical practice, or to ban their use.

They are attested in the "Orphic Argonautica" as existing on the territory of Medea's garden. The definition of their names is the task of the future and we plan to continue our researches in this direction.

The results of the study lead to the conclusion that the healing qualities of the plants growing in Medea's garden are unquestionable, and this may serve as the evidence attesting to the actual existence of Medea's garden.

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<sup>11</sup> The Fund of the Museum of Georgian History of Medicine, Tbilisi, 1960-1990; Eristavi L., *Farmacognozia*, Tbilisi, 2005, 675 (in Georgian); Муравьева Д., *Фармакогнозия*, Москва, 198, 656.

<sup>12</sup> Шретер А., *Лекарственная флора Кавказа*, Москва, 1979, 368; Ковалёва Н., *Лечение растениями*, Москва, 1972, 350; *Полная энциклопедия народной медицины*, Москва, 1998, vol. 1: 751, vol. 2: 799; *PDR for Herbal Medicines*, Montvale, New Jersey, 1998, 1244.