



Historical Review of Ethnopharmacology in Karelia (1850s–2020s): Herbs and healers

Valeria Kolosova^{a,b,*}, Tatiana Pashkova^c, Mehmet Muslimov^b, Renata Sõukand^a

^a Ca' Foscari University, Department of Environmental Sciences, Via Torino 155, 30172, Mestre, Venice, Italy

^b Institute for Linguistic Studies, Russian Academy of Sciences, Tuchkov Pereulok 9, 199004, St Petersburg, Russia

^c Petrozavodsk State University, Lenin Str. 33, 185910, Petrozavodsk, Russia

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ABSTRACT

Ethnopharmacological relevance: The traditional medicine of various peoples populating Russia is strongly underrepresented in the international anthropological literature. In addition, it has a multicomponent structure, a long history of relations with official medicine, and is still a living system with many people using folk remedies and visiting ritual specialists.

Aim of the study: The article is a review of folk medicine in Karelia (north-west part of Russia) providing a short description of the history of medicine in this region and a comparison of folk medicine among Karelians and Russians.

Materials and methods: The review analyzes and systematizes published and unpublished sources related to the main remedies used by the local populations – plants, animal products, minerals, etc. – from the 1850s–2000s, tracking the main tendencies in publications about the folk medicine of Karelians and Russians of Karelia.

Results: A total of 104 medicinal plants belonging to 46 families were mentioned as medicinal. In total, they represented 386 uses which demonstrate the leading role of plant remedies in the folk medicine of Karelia. The plant species with the most uses were *Betula* sp., *Plantago* sp., *Rubus idaeus*, *Viburnum opulus*, *Vaccinium vitis-idaea*, and *Daphne mezereum*. Medicinal uses of other origins had more modest numbers: animal remedies included 146 uses, and mineral ones 43 uses. Among animal-based remedies, physiological discharges of the human body were the most popular; fish oil and bear body parts were the most used from the wild, while from the household various components of cows, horses, and dogs were used. Animal remedies were mostly used for healing furuncles, scrofula, frostbite, hernia, and lanugo. The most diversely used mineral remedy was salt.

Conclusions: Karelians and Russians are very disproportionately represented in the literature due to the lack of interest in the folk medicine of Russians in Karelia, in contrast to that of Karelians. The disparity does not allow adequate comparison, but nonetheless the available data demonstrate that the remedies shared by both ethnic groups are quite few. The review also contributes to research on the relationship of folk medicine and various state institutions in Russia/the Soviet Union.

1. Introduction

Pardo de Santayana et al. (2015) noted: “modern medical ethnobotanical studies are still quite rare in northern Europe, the Baltic States, Russia and other former Soviet Bloc countries”. Those existing do not come to the attention of the international reader because of language barriers and the highly competitive nature of top journals. For example, a review of medical ethnobotany in Europe (Quave et al., 2012) analyzed 117 publications from 1992 to 2012, considering only those

indexed by Scopus, and with such a criterion, all Russian-language publications were automatically excluded from the analysis. This is even truer of literature reviews, which usually appear as initial chapters of dissertations. Texts of this nature are seldom published and are not easily available even for Russian-speaking people.

In Russia, the first medical books containing descriptions of various plants were translated, starting from the 16th century, from German, Polish, and later Latin; some of these texts were translations themselves. Since then, a system of scholarly natural science ideas (having ancient,

* Corresponding author. Ca' Foscari University of Venice, Via Torino 155, 30172, Mestre, Venice, Italy.

E-mail addresses: chakra@eu.spb.ru (V. Kolosova), tpashkova05@mail.ru (T. Pashkova), mehmet@yandex.ru (M. Muslimov), renata.soukand@unive.it (R. Sõukand).

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Byzantine and Western European origins) has coexisted with Russian folk medicine (based on folklore and mythological ideas), with a body of folk herbal manuscripts between them (Ippolitova, 2008: 8). The situation with other peoples inhabiting Russia is much more complicated. We do not know whether they have read the same herbal books or have used the same folk remedies as Russians.

This article is a part of a bigger project titled “DiGe – Ethnobotany of divided generations in the context of centralization”. The project concerns ethnic groups now divided by state borders and seeks to understand the influence of centralized authorities and state medicine on the local ecological knowledge in border regions. The article creates a basis for comparison with recent fieldwork results – but as the data is extensive, collected with different methods, and belongs to different diachronic periods, it is important to analyze it separately. The current article is based on the materials from one of these regions, namely Karelia. The region is interesting as a place of longstanding cohabitation of Slavonic and Finno-Ugric populations, that is, of the Russian and Karelian languages and (especially in the past) of Christian and pagan religious systems.

The Republic of Karelia is a region in NW Russia bordering Finland. Karelia is a part of the physico-geographical zone of Fennoscandia, being located in its southeastern part (Kravchenko, 2007). The territory is mostly covered by state forest stock, but it also includes Ladoga and Onega lakes – the largest in Europe. The predominant ethnic group is Russians, while native peoples of the region include Karelians, Finns and Veps; the numbers of Belarusians and Ukrainians are also notable (Okorotyshcheva et al., 2004). The Karelian language belongs to the Baltic-Finnish branch of the Finno-Ugric language family. The number of native speakers is continuously decreasing (Karjalainen et al., 2013: 187).

Recently, Karelia has become a hotspot for ethnomedicine research, yet these works are not available in English. Another problem is that plant names are given in local languages and no herbal specimens are provided to connect with Latin nomenclature. Moreover, the information is often given in a general manner; that is, whole areas are referred to without geographical details and the numbers of users are not mentioned. On the other hand, botanical investigations about the region, containing Latin nomenclature, such as Giunter (1867), do not mention any data on folk plant uses.

In the context of ethnographic and anthropological research in Karelia, folk medicine had a marginal position for a long time. It was hardly mentioned in the first descriptions of Karelia (Maksimov, 1859; Leskov, 1893). A large-scale project of the Ethnographic Bureau by prince Tenishev includes only three-pages of archival text about one of the *uezd* of Olonets *gubernia* (Baranov, 2008), which do not mention folk medicine. Although corresponding questions were included in the Bureau's questionnaire, the correspondents did not seem to have anything to say on the subject. A description of the manuscripts contained in the archive of the Russian Geographical Society, in the part concerning Karelia, mentions four healing spells (Zelenin, 1915); however, there is no data on the nationality of the informants. In summary monographs on the culture of specific ethnolocal groups of Karelians (Taroeva, 1965; Krasnopol'skaia and Orfinskii, 1997; Orfinskii, 2001; Orfinskii, 2008) and Russians in Karelia (Loginov, 1993a, 1993b, 2006), there are no chapters dedicated to folk medicine. In most cases, reference to folk medicine looked like the following: “Raspberries (*vagarmo*), blueberries (*mus's'ikka*) were dried, and then, as well as cranberries, used for medicinal purposes” (Klement'ev, 1981: 142). In Zherbin (1983) there is one paragraph about floral, animal, and mineral remedies discussed together, and one more about sorcerers, included in the chapter “Family and family life”.

Perhaps, from a humanities point of view, folk medicine fell into the gap between material and spiritual culture, where the former usually served as an object of ethnography and the latter that of folklore. Nevertheless, the first article on the folk medicine of Karelians was only published in 1994. Plants are mentioned among the remedies as well;

although, in most cases it is not clear which part was used and how it was prepared (Nikol'skaia and Surkhasko, 1994). There is also a dissertation on Karelian folk medicine, based on both published sources and the author's own field materials (Pashkova, 2018). At the same time, the folk medicine of Russians in Karelia has not been extensively researched at all. Some scarce data can be found in the ethnographic literature; for example, works by Loginov (1993a; 1993b; 2006). The only article specifically concerning the folk medicine of Russians in Karelia was published in 2000; this mentions the use of twelve plants (Maslov, 2000).

Therefore, the aims of the present review are:

- to present to the international scientific community an overview of the folk medicine of the Karelian Republic among Karelians and Russians;
- to demonstrate that careful research may yield significant results even nowadays; and
- to make, to the extent possible, cross-cultural (Karelians and Russians) and cross-sectoral (ways of healing) comparison.

2. Methods

Most of the publications and unpublished manuscripts on folk medicine in Karelia were found through visual systematic search in numerous ethnographical books and articles about various regions of Karelia in the National Library of Karelia, the Library of the Karelian Research Centre (Russian Academy of Sciences) and the Archive of the Centre (Petrozavodsk). A few digitized sources are located on the website of the Karelian Research Centre (<http://www.krc.karelia.ru/publ.php?plang=r>). Some old journals and newspapers containing relevant publications are located on the website of the project “Ethnography and folklore of the Russian North” (<https://www.booksite.ru/folk/index.php>) and on the website of the Presidential Library (<https://www.prlib.ru/>). Internet searches with the key-words “*narodnaia meditsina*” (folk medicine) and “Karelia”, both in English and Russian, on the portals <https://www.researchgate.net> and <https://www.academia.edu> and in Google Scholar did not yield many results. Materials on professional doctors' view of folk medicine and on medical legislation were found in the National Library of Russia and the Library of the Academy of Sciences (St Petersburg).

The only article providing Latin plant names is that of Chesheiko (1997), whose identification may, however, be treated carefully, as her data is presented as it is due to the lack of comparative information, and as we lack a clear understanding of the author's methodology. So, identification of plant names is often based on the herbarium specimens collected during fieldwork conducted within the framework of the DiGe project (Kolosova et al., 2020). We also used database An Online Flora of All Known Plants as the basis for plant nomenclature. We did not consider the entries mentioning just “herbs” without any further specification. Many plant parts or applications are not indicated in the sources. For zoological names, the Global Biodiversity Information Facility was used, while the Pubchem database was utilized for mineral nomenclature.

We considered sources in Russian, Finnish and Karelian. Some of Russian sources have a compilatory character and included numerous materials in Finnish and Karelian, too, both published and archival. Still, there is no certainty that all possible sources were checked, as archives may contain data still unknown.

Correspondence between etic and emic disease categories was often difficult to establish properly, as some authors used official disease names while the others used folk ones. For example, the term “hernia” (Rus. *gryzha*) may mean umbilical hernia, inguinal hernia, or stomach pain of any origin. The same applies to the Russian term *zolotnik*, which usually concerns uterus problems, but also other women's diseases. Lanugo (Rus. *shchetinka*) refers to not only the thin hair found on the body of new-born infants but also some invisible problem which makes



Fig. 1. 1. Location of Karelia on the map of Europe; 2. Karelia (CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=97735>).

them cry. “Dog senility” may refer to progeria, rachitis, tuberculosis, etc. A number of Karelian disease names do not provide any prospect of understanding what it is. In Karelian folk medicine, diseases were often named not by symptoms or a diseased organ, but by the place where the disease struck the person – “disease from the forest”, “disease from water”, and “disease from the earth” – or “disease from a dead man” and “disease from God”. In addition, each of these may have several different symptoms; for example, disease from water could have such symptoms as bruises, skin and/or internal diseases, coldness throughout the body, and blueness of the face. More than that, the “source” of the disease was divined by fortune telling. Diseases were often perceived as living things (Pashkova, 2018). In a similar way, for the disease “forest nose” (Kar. *metsännenä*), the main cause was believed to be breaking rules and taboos of communicating with forest spirits, or the wrong way and improper purpose of penetrating the “forest kingdom”. Its symptoms could include pain in the chest and shoulders, vertigo, sickness, and vomiting (Ivanova, 2012).

3. Data

3.1. History of medicine in Karelia

Official state medicine in rural areas of Russia did not exist until a reform of local government (Rus. *zemstvo*) was carried out in 1864. In Karelia, this process was complicated by a vast territory (Fig. 1), the poor state of roads and transportation system, and long winters with low temperatures and lots of snow. Only one *zemstvo* doctor was appointed to the huge district. The most common disease in Kem’ district was scurvy, as almost every local resident had it at least once in their lifetime (Pashkova, 2015a). Bad food, a humid climate, and the absence of hygiene contributed to the development of smallpox, typhus, and scabies. A widely used remedy was the *banya* (Russian bathhouse); however, it was often visited by the sick and healthy alike, and thus it only spread infections (V-ov, 1913b). The population seldom utilized the official medical system because of the lack of local specialists and high fees for treatment; fear and distrust of the *intelligentsia* contributed to the prosperity of folk medicine, often based on pagan ideas (Bolgova, 2011). Before the reform – and long after – peasants visited healers (Kar. *tiedoiniekad*, Rus. *znakhar’*, *lekar’*, *babushka*), and in the case of serious illness, people turned to famous sorcerers (Kar. *tietaja*, *tiedäi*, Rus. *koldun*, *vedun*). In addition, everyone knew a certain number of spells “for themselves” (Iliukha and Litvin, 2012). From the very beginning, state medical doctors were extremely negative about the results of their

activity: “There is no need to talk about the local means of healers and compassionate “grandmothers”: their destructive activities have full scope and trust; their significance and influence in this respect is all too obvious” (V-ov, 1913b: 257).

At the beginning of the 20th century, medical care was still very limited, but there was a continuous increase in the number of peasants seeking help from professionals (Iliukha and Litvin, 2012). The most serious concern of doctors was the health of pregnant women, newborn babies, and little children. In 1876, G. Grigor’ev, the governor of Olonets *gubernia*, noted the higher mortality of village women of childbearing age and children between 0 and 5 years old compared to that of cities, blaming village healers. Olonets *zemstvo* established 12 annual scholarships for midwives, but despite the risk of injury or death, peasant women almost always preferred the help of healers (Grigor’ev, 2012). As a local doctor wrote, “We doctors often have to cope with the consequences of their assistance: neglected transverse and indirect positions [of babies], prolapse of limbs, perineal ruptures, postpartum metritis and endometritis, uterine prolapse, postpartum hemorrhage” (Shepil’evskii, 2012: 255–256). The problem unquestionably worried more than just the Russian government. For example, one publication in a professional Russian medical journal was titled “A few words about witchcraft and charlatan medicine and about a German legislative bill aimed at limiting the harm from such medicine” (Bergenson, 1911). Even in the 1930s in Karelia, the tradition of giving birth in secret was still alive, resorting to the help of a knowledgeable old woman as she was “one of us”; the woman in labor expected from her not only medical assistance, but also help in household matters during the first days after giving birth (Iliukha and Litvin, 2012).

3.2. Role of religion

However, the priority in persecuting sorcerers belonged not to atheists or supporters of scientific medicine, but to the Orthodox Church (Nikol’skaia and Surkhasko, 1994). They healed with drugs and spells, and therefore their power did not come from divine grace, but from “the unclean” [that is the devil]. As a clergyman said, “These ordinary people, before seeking the blessed healing from the saints, unfortunately, turn to various potions and spells of healers, who are numerous in Onega region” (Barsov, 1867). Russians adopted Orthodox Christianity in 988 and later Karelians in 1227 (Pivoev, 2003). However, Karelians “did not adopt the spirit of Christianity, but only its ritual side” (V-ov, 1913a). Legatov, Archpriest of the Arkhangelsk diocese, called on priests to visit villagers and provide them with any potential medical assistance, but at

the beginning of the 19th century, theological seminaries stopped teaching the basics of medicine (Pashkova, 2015a). So, Karelian folk medicine found itself “between a rock and a hard place” – official medicine and the Russian Orthodox Church. The struggle against “popular ignorance” reached the point of court trials over the carriers of the tradition. Folklorist N.P. Kolpakova, who recorded folklore in Zaonezh'e in 1926, mentioned in her book an investigation that had been conducted in Zaonezh'e in the spring of that year “about self-proclaimed midwives, because of whom several newborns died” (Kurets, 2000: 4).

Comparing Russian and Karelian healing traditions, K. Loginov noted: “Unlike Russians, Karelian healers used not only spells for treatment, but also the charms of runes in the Kalevala rhythm” (Loginov, 2010: 278). According to popular belief, “Russian sorcerers were helped in witchcraft exclusively by devils, not by the spirits of natural elements, as in the case of the Karelian *tiädäjäd*. The idea of devils obeying Satan was alien to Karelians. Thus, the *tiädäjäd* are the heirs of the ancient pre-Christian tradition of Karelian magi or pagan priests, and not the result of the introduction of Christianized rituals of “black magic” into the Karelian environment, as was the case among Russians”. The decline of the ancient tradition lasted until the end of the first decade of the 21st century (Loginov, 2010). The Russian tradition of sorcery also ended by the middle of the 1950s; yet the transmission of some healing spells from an old healer to her granddaughter occurred in 2003 (Loginov, 2009).

3.3. Legal aspects

In reality, in spite of the negative discourse and hopes of doctors for a fast victory over healers, the latter's legal position was not so vulnerable. Doctors deemed healers a considerable evil, affecting mainly the rural population, and someone to be prosecuted. However, “the existing Criminal Code did not contain a special article dealing with professional quackery: healers, “grannies”, “folk doctors”, and “Chinese doctors” continue their harmful activities with impunity. The corresponding cases of their criminal acts were qualified as careless murder or careless bodily harm” (Leibovich, 1926: 86). The same author hoped that “with the approval of the instruction by the People's Commissariat of Justice and the People's Commissariat for Health on May 12, 1925, about responsibility for illegal medicine, a turning point in the fight against quackery will come” (Ibidem). Yet, Article 194 of the Russian Soviet Federative Socialist Republic Criminal Code adopted in 1927 prohibited “practicing medicine as a profession by persons who do not have a properly established medical education”; it was explained that “isolated acts of healing, not becoming a profession, i.e., not committed systematically and not serving as a source of livelihood, do not fall within the scope of the article in question” (Varshavskii, 1928: 173). Such wording, in practice, created significant difficulties in the judicial struggle against healers, because it was hard to prove “professionalism” to the court (Varshavskii, 1928: 173). In fact, during the Soviet era authorities did not punish the activity itself but only receiving “unearned income” (Rus. *netrudovye dokhody*). Article 57 of the “Fundamentals of the legislation of the Russian Federation on the protection of public health” (approved by the Russian Federation Supreme Council on July 22, 1993) states that “Citizens of the Russian Federation who have received a healer diploma issued by the executive authorities of the constituent entities of the Russian Federation in the field of health have the right to practice traditional medicine” (Article 57, 1993). Federal Law #323-FZ of November 21, 2011 (edited on 31.07.2020) “On the Fundamentals of Health Protection of Citizens in the Russian Federation” words it as “The right to practice traditional medicine is given to a citizen who has

received a permit issued by the executive authority of a constituent entity of the Russian Federation in the field of health protection” (Article 50, 2011). In spite of the theoretical prohibition of regular healing activity without a medical education, some researchers have noted cases of medical workers sending their patients to healers (Kõiva, 2014; Litvin, 2016; see also Kolosova et al., unpublished results).

3.4. “Enlightened view”

Yet, to be fair, one should say that there was a “privileged” group of healers' remedies, namely plants. The first Russian pharmacy was established in Moscow in 1581. Some materials were purchased in Moscow markets, others, including “medicinal herbs”, were brought by foreign doctors. Since the first half of the 17th century, the Apothecary Chancery (Rus. *Aptekarskii Prikaz*) has organized expeditions to collect medicinal herbs and roots in various parts of Russia (Inokhodtsev, 1981).

In 1884, the newspaper “Olonetskie Gubernskie Vedomosti” [“Olonets Provincial Gazette”] published a copy of a herbal book titled “Inquiry to those who wish to know about herbs curing diseases”. The manuscript contained 38 pages and 146 descriptions of herbs, sometimes having strange names and functions. It was copied by state peasant Ilya Ivanov in 1767 at Petrovsky factories. It contained descriptions of herbs, their location, and their medicinal properties. Still, we do not know who (if anyone) actually used the information in practice. The following is an example of one herb: “Herb Bronets. It grows in stony places where there is cowberry, in the mountains, near springs and green fir-trees; the leaves are narrow, like a squirrel claw; and with segments on the top, seven segments on the main stem. Soak in vinegar, seal it with unleavened dough for one day in a pot, and then give to drink to those who are damned to death. Give two *zlotniks* [1 *zlotnik* = 4.27 gr] to a large person, one *zlotnik* to a middle-sized one, and half a *zlotnik* to a small one” (Samolechenie, 1884).

Famous Russian ethnographer, lexicographer, folklorist, and doctor Vladimir Dal' called for the study of traditional medicine remedies and the use of those that prove to be beneficial: “We are obliged to familiarize ourselves with all common folk remedies and their manner of use; we are obliged to observe them, examine them, test them where common sense, conscience, and scientific foundations allow it, and then, strictly separate the erroneous, stupid, superstitious, and harmful from the useful, thus multiplying the supply of scientific medical means” (Dal', 1854: 236). He also did not refuse to analyze remedies which looked like magic upon first view: “Maybe, under the guise of sympathetic means sometimes useful drugs are hidden, and we should only try to cleanse the essence of the affair from superfluous rituals and show it in the real form” (Dal', 1854: 248).

Another correspondent of the local press wrote: “Witchcraft is infinitely ugly and a criminal phenomenon in human life; in the Arkhangelsk province, where for the rural population, abandoned in the wilderness of forests and tundra, education is provided in extremely limited sizes, it has built a particularly strong nest for itself, is developing in appalling proportions and has a lot of various rough forms. In most cases, healers use as medicines sugar, bread crust, salt, coal, honey, wax, milk, cow dung, peas, tar, sour cream, and so on. In other cases, they use one or another remedy from folk medicine, accompanying it with a spell. And finally, against certain diseases, they use a spell exclusively. In other words, healers are divided into three groups: 1) charlatans, who in fact know nothing, but base their well-being on the ignorant trust of patients; 2) people who treat patients with some folk medicine remedies, enhancing their effect with spells; 3) people who

Table 1

The types and frequency of citation of different folk medicine methods in Karelia, separated by ethnic origin of the information, reported in the studied sources.

Plants as the main remedy	Plants as a magic mediator	Animals	Minerals	Physiotherapy	Magic	Doctors	Medicines	Source
KARELIANS								
1								Maksimov (1859)
4								Leskov (1893)
1								Linkola (1914)
38								Liro (1915)
6		3	2					Zelenin (1941)
35		20	1	5				Taroeva (1976)
			1		2			Konkka (1985)
25		19	2	4	1	1		Nikol'skaia and Surkhasko, 1994
38								Chesheiko (1997)
4	14	1	1	1	8			Ivanova (2012)
184	2	101	35	53	78		2	Litvin and Minvaleev, 2017
37								Pashkova (2018)
								Lebedeva and Tkachenko, 2016
RUSSIANS								
4								Loginov (1993a)
12	5	6	2	14	24			Loginov (1993b)
12		1	2	1	35			Maslov (2000)
					6			Loginov (2005)
		1						Loginov (2006)
2					14			Loginov (2009)
		1	1	1	12			Tseitlin, 1912

influence patients exclusively with spells. With the last two methods of treatment, one must assume, cases of recovery are possible" (Postnikov, 1909: 23–25). Modern medicine, whose representatives struggled against quackery, began, more and more, to use various kinds of medicinal herbs, roots, and stones, having long been used by healers, eventually leading to the declaration: "isn't the theory of hypnosis equal to the secret of treatment with spells, isn't it a verbal suggestion?" (Tseitlin, 1912). So, we can observe that medical personnel separated charlatanry from reasonable actions in folk medicine.

In 1916, V.F. Voleiko called for harvesting medicinal herbs in Olonets *gubernia*, instead of "wasting a huge amount of money on the purchase of various foreign items and goods, despite the fact that in Russia you can find various raw materials, from which it would be possible to make all these items and goods for local needs, and the surplus for export" (Voleiko, 1916). In that same year, A.G. Klinge explained not only the economic, but also the political, aspect of the situation when Germany and Austria-Hungary became enemies of the Triple Entente: "The World War took us by surprise. There is a strong lack of medicinal substances. Until now, we received medicines from Germany and Austria, being completely dependent on foreign markets. This economic slavery, especially felt now, makes us wake up and create our own drug industry, in order to avoid buying any foreign drugs whenever possible" (Klinge, 1916: 2). He also noted that Russia buys pharmaceutical and perfumery goods (often falsified) from abroad, overpaying large sums annually, while the raw herbs collected in Russia are exported abroad unprocessed, although their processing could be organized better inside the country, considering the comparative cheapness of land and labor (Klinge, 1916).

3.5. Scholarly works mentioning Karelian folk medicine

Presumably, the first mention of wild medicinal plants in the territory of modern-day Karelia was made by the young writer S. Maksimov as a result of a "literature expedition" in 1855. He cited a fisherman who described preparations for a long fishing trip to northern seas: "For the whole *artel'* [a group of workers] one must take – simply can't live

without it – a barrel of soaked cloudberry: without cloudberry scurvy will lead to death" (Maksimov, 1859: 76–77). This shows that the locals understood the role of the prophylaxis of scurvy in wintertime. Another writer, Nikolai Leskov, after travelling around Olonets province, published several Karelian plant names, written in a mixture of Latin and Cyrillic letters, and the diseases they were used to treat; unfortunately, he did not give either Russian or Latin plant names, so it is hardly possible to identify them (Leskov, 1893).

In the Karelian Scientific Centre (Petrozavodsk, Russia), we managed to find the personal archive by R. Taroeva (Nikol'skaia). It contained transcripts of materials on folk medicine, collected by the author during her expeditions in 1972–1976 to several villages of Karelia (Taroeva, 1976). However, she mostly discussed other subjects of Karelian ethnography, and her first article on the folk medicine of Karelians was not published until twenty years later. Several types of remedies were described in this later work, including plants; although, in most cases it is not clear which part was used and how it was prepared (Nikol'skaia and Surkhasko, 1994). N. Chesheiko, a linguist from Petrozavodsk, analyzed medicinal plant use in close connection with their names. This is the only work giving official Russian and Latin names as well as folk Karelian plant names, which allowed not only reliable plant identification but also tracking folk naming based on plant features and their use; unfortunately, the list of the plants analyzed is not very extensive (Chesheiko, 1997). In addition, the author stated that "even with the active use of flora vocabulary in society, many useful features of plants are being forgotten, and as a result the traditions of popular medicine on the whole are lost" (Chesheiko, 1997: 115). The second author of the present study wrote a study on Karelian folk medicine in the 19th to 21st centuries, based on both published sources and the author's own field materials. Phytotherapy, animal remedies, mineral objects, and other means are given separate chapters (Pashkova, 2018). In the dissertation, for the first time, plant parts, ways of preparing (medicinal forms), and their uses are accurately enumerated. Another researcher from the Karelian Scientific Centre, K.K. Loginov, mentioned some folk medicinal data in his works about culture and magic among Russians of Zaonezh'e (Loginov, 1993b) and Vodlozer'e (Loginov, 2006), but he was mostly

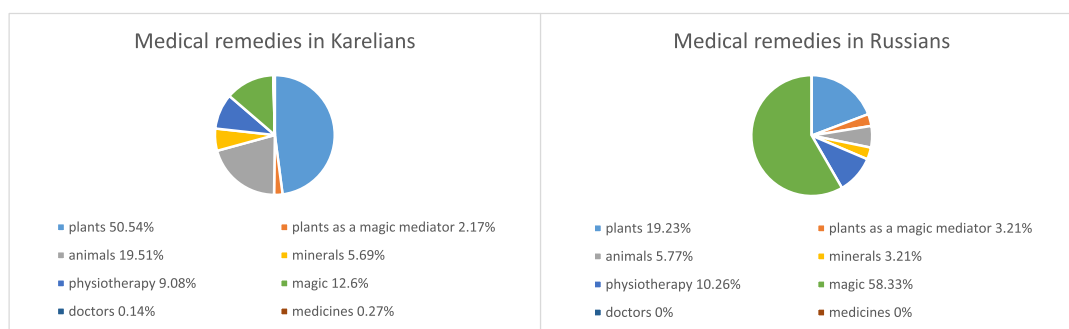


Fig. 2. Medical remedies in Karelians and Russians according to written sources.

interested in traditions of sorcery and spells. V.V. Maslov, a researcher from the Kizhi Museum, based his article on field materials collected in Russian villages of Zaonezh'e and Pomop'e; but very few plants are mentioned in his article (Maslov, 2000).

Academic research into healing traditions in Karelia was started by folklorists. A collection of Karelian spells and charms containing material having been established for 150 years was published in 1992. A number of spells “for oneself” (Kar. *omiksi tarpehiksi*) were known to everyone. They were spoken in whispers, far from other people, often in the *banya*. In difficult cases patients visited well-known charmers. The texts have the poetic rhythm of Kalevala (Karelian-Finnish epic poetry). Medical spells fill 24 pages and contain incantations against bleeding, wounds, fire and frostbite, snake bites, “diseases from water”, plague, and so on (Lavonen, 1992). As to Russian spells written down in Karelia, the chapter “Medical spells” contains 244 texts on 58 pages. Most of the spells concern childhood diseases, but there are also ones against eye diseases and toothache, rashes, dislocations, wounds and bleeding, snake and dog bites, and some other diseases. The texts are in prose (or rhythmical prose), and most of them contain Christian lexis (Kurets, 2000). Knowledgeable healers practicing spells have been identified in recent decades; however, changing economic and social conditions have contributed to the near extinction of spellcasting. The subject matter of spells has become narrower: now there are mainly incantations against “evil eye”, hernia, and scrofula, as well as cattle breeding spells. The texts became shorter, and they contain a minimal set of formulas and stylistic means, sometimes fragmentary and even destroyed. Young people do not have a spellcasting tradition. Of the 119 healers from the collection, 39 were born in 1839–1899, 60 were born in 1900–1919, and 6 were born in 1920–1938 (Kurets, 2000: 25).

4. Results and discussion

The types of folk remedies used in Karelia, mentioned in both published and archival works, are reviewed in Table 1. Quantitative differences between studies of Russian and Karelian traditions are remarkable. First, thirteen investigations paid attention to Karelian folk medicine, while only three addressed Russian folk medicine. Second, interest in the folk medicine of Russians living in Karelia only started in the 1990s. In addition, Loginov (2005, 2009, 2010) and Tseitlin (1912) were specifically interested in professional healers and their spells. Loginov (1993a, 2006) also mentioned some other types of remedies in his general descriptions of various local Russian groups in Karelia, but mostly in passing. Thus, more or less, the overall picture is only provided in Loginov (1993b) and Maslov (2000). The situation was a little bit different with the study of Karelian folk medicine. Maksimov (1859),

Leskov (1893), Lönnrot (Konkka, 1985), and Zelenin (1941) mostly described everyday life and the difficult working conditions of Karelians, while Liro (1915) and Linkola (1914) were interested in Karelian plant names, Chesheiko in plant names in their connection with phytotherapy, and Ivanova in spells and beliefs. In fact, only three publications (Taroeva, 1976; Nikol'skaia and Surkhasko, 1994; Pashkova, 2018) focused on folk medicine as a system; and in all three, plants predominate.

The categorisation of various folk remedies is based on the ones used in the sources cited. Table 1 and Fig. 2 reflect not so much the actual number of specific remedies used as the scientific interests of a researcher and, accordingly, the questions they asked or the materials they looked for. For example, the article by Ivanova (2012) concerns healing the disease “forest nose”, which is believed to be the result of breaking mythological taboos in the forest, and so is mostly healed by magic. The academic interest of K. Loginov also lay in the area of folk magic, which is reflected in the corresponding column of Table 1.

Plants and their uses mentioned in the ethnographic literature are given in Table 2. The disparity in covering Russian and Karelian material is evident – 35 vs 351 plant uses, respectively. The predominant taxa among Karelians are *Betula* sp. (24 uses), *Plantago* spp. (17), *Rubus idaeus* L. (16), and *Viburnum opulus* L. and *Daphne mezereum* L. (12 uses each); among Russians only *Betula* sp. and *Prunus padus* L. have three uses, while *Centaurea* sp., *Tanacetum vulgare* L., *Taraxacum officinale* F.H. Wigg. and *Vaccinium myrtillus* L. have two uses each. The plants listed were primarily used for treating cough (28 mentions), abscesses (26), and stomachaches/upsets/disorders (24). Various plant parts were mostly used fresh (56 uses). Making decoctions (46) and infusions (32) from dry herbs was also quite popular, which can be explained by long winters and the concomitant creation of medicinal stores during summertime to be used later. As nearly all authors (apart from Liro, Linkola, and Taroeva) wrote in Russian, they usually provided only Russian plant names, even while describing Karelian medicine. In addition, those Russian plant names are colloquial, so it is not always possible to identify plants on the species level. In Table 2, such plants are marked with an asterisk. A number of plants remained unidentified, and these are listed at the bottom of the table. The last column, “Decades”, presents the use dates given in (Pashkova, 2018), as that work comprises information from the 19th century to the beginning of the 21st century.

The data become more abundant over time. For example, Pashkova (2018) mentions about 70 plants, which looks quite impressive against the Karelian data from the 19th century: “the Karelian pharmacy is not rich in medicines and is adapted to treat the simplest *muzhik* diseases: *ravde-heine* – stops bleeding cuts; *urchoi-heine* – suitable for stomach disorders, *kuvzi-lehti* – for scabies, *ailaz-heine* – for colic, etc.” (Leskov,

Table 2
Plants and their uses mentioned in the ethnographic literature.

Plant taxa	Local name	Used part	Preparation	Treated disease	KAR	RUS	Source	Decades
* <i>Viburnum opulus</i> L.; Adoxaceae	Rus. <i>kalina</i> Kar. <i>kalina, kalinanmarja</i>	fruit	juice,	earache	X		Pashkova (2018)	2000s, 2010s
			decoction					
	juice		headache	X	Pashkova (2018)	2000s		
	bark	leaves	decoction	scrofula	X	Pashkova (2018)	2000s	
			dry, then	stomachache	X	Taroeva (1976)		
			decoction					
			decoction	scrofula	X	Pashkova (2018)	2000s	
			apply fresh	wounds	X	Liro (1915)		
			apply fresh	furuncles	X	Liro (1915)		
			decoction	fever	X	Liro (1915)		
				cold	X	Liro (1915)		
				inner diseases	X	Liro (1915)		
				earache	X	Liro (1915)		
? aerial parts	Rus. <i>lebeda</i> Kar. —	decoction	stomachache	X	Liro (1915)			
		tincture	female diseases	X	Lebedeva and Tkachenko, 2016			
<i>Allium cepa</i> L.; Amaryllidaceae	Rus. <i>luk</i> Kar. —	roots	baked	abscesses, furuncles	X		Nikol'skaia and Surkhasko, 1994	
			fresh	hematoma	X	Pashkova (2018)	2000s	
<i>Allium sativum</i> L.; Amaryllidaceae	Rus. <i>chesnok</i> Kar. —	juice	ointment (+ tobacco)	hernia	X		Pashkova (2018)	2000s
			fresh	warts	X	Pashkova (2018)	2000s	
* <i>Angelica</i> sp.; Apiaceae	Rus. <i>dudnik</i> Kar. —	roots	infusion in milk	otitis	X		Pashkova (2018)	2000s
			decoction	stomachache	X	Pashkova (2018)	1950s, 1990s, 2000s	
<i>Daucus carota</i> subsp. <i>sativus</i> (Hoffm.) Arcang.; Apiaceae	Rus. <i>morkov'</i> Kar. —	roots	fresh	mastitis	X		Pashkova (2018)	1990s
<i>Pimpinella saxifraga</i> L.; Apiaceae	Rus. <i>bedrenets</i> Kar. <i>rautaheinä, raudaheinä, rauvanheinä, rauduheiny, raudhein'</i>	?	?	cuts	X		Chesheiko (1997)	
<i>Achillea millefolium</i> L.; Asteraceae	Rus. <i>tysiachelistnik</i> Kar. <i>rautaheinä, raudaheinä rauanheinä, rauvanheinä, rauduheiny, raudhein', muahisheiny, kaamennaja travaa</i>	aerial parts	lotion	cuts	X		Chesheiko (1997)	
			infusion	fever, cold	X		Liro (1915)	
		juice	fresh	runny nose	X	Pashkova (2018)	2000s	
				wounds	X	Liro (1915)		
		leaves	fresh	abscesses, furuncles	X	Pashkova (2018)	1990s	
				nose bleeding	X	Pashkova (2018)	2000s, 2010s	
				abscesses, furuncles	X	Pashkova (2018)	2000s	
<i>Arctium lappa</i> L.; Asteraceae	Rus. <i>lopukh, repeinik</i> Kar. <i>ägienlehti</i>	leaves	dry	wounds	X		Liro (1915)	
			?	skin rashes, eczema	X	Chesheiko (1997)		
			fresh	abrasions, swellings, burns, wounds	X	Chesheiko (1997); Pashkova (2018)	2010s	
				cuts	X	Pashkova (2018)	2010s	
				headache	X	Maslov (2000)		
<i>Arctium tomentosum</i> Mill.; Asteraceae	Rus. <i>lopukh voilochnyi</i> Kar. —	leaves	?	abscesses	X	X	Nikol'skaia and Surkhasko, 1994	
				?	swellings	X	Nikol'skaia and Surkhasko, 1994	
				?	joint ache	X	Lebedeva and Tkachenko, 2016	
					headache	X	Lebedeva and Tkachenko, 2016	
<i>Bidens tripartita</i> L.; Asteraceae	Rus. <i>chereda</i> Kar. —	leaves	decoction	scrofula	X		Pashkova (2018)	2000s
			tincture	scurvy	X	Pashkova (2018)	1920s, 1940s, 2000s	
<i>Calendula officinalis</i> L.; Asteraceae	Rus. <i>nogotki</i> Kar. —	leaves, flowers	ointment	frostbite	X		Pashkova (2018)	1970s
<i>Centaurea</i> sp.; Asteraceae	Rus. <i>vasil'ki</i> Kar. —	?	decoction	convulsions in infants		X	Loginov (1993b)	
<i>Cirsium helenioides</i> (L.) Hill; Asteraceae	Rus. <i>bodiak</i> Kar. <i>puhallušeinä</i>	?	steam in water	hernia		X	Loginov (1993b)	
				swellings	X	Chesheiko (1997)		
<i>Cota tinctoria</i> (L.) J. Gay; Asteraceae	Rus. <i>pupavka</i> Kar. <i>keldataudiheinä</i>	?	?	jaundice	X		Chesheiko (1997)	
<i>Helianthus annuus</i> L.; Asteraceae	Rus. <i>podsolnuh</i> Kar. <i>siemenvoi</i>	oil	?	burns	X		Nikol'skaia and Surkhasko, 1994	
				pains	X	Taroeva (1976)		
<i>Matricaria</i> sp.; Asteraceae (<i>Matricaria</i> sp.?)	Rus. <i>romashka</i> Kar. <i>kulkkutaudiheiny</i> ?	?	tincture	tonsillitis	X		Chesheiko (1997)	
			leaves, flowers	decoction, tincture	diarrhea	X	Pashkova (2018)	1980s
		?	infusion	stomach upset	X			

(continued on next page)

Table 2 (continued)

Plant taxa	Local name	Used part	Preparation	Treated disease	KAR	RUS	Source	Decades
		?	decoction	abortion		X	Nikol'skaia and Surkhasko, 1994	
		?	decoction	hygiene	X		Loginov (1993b)	
<i>Gnaphalium</i> sp.;	Rus. <i>sushenitsa</i>	?	?	skin diseases	X		Litvin and Minvaleev, 2017	
Asteraceae	Kar. <i>paganusheinä</i>						Chesheiko (1997)	
<i>Tanacetum vulgare</i> L.;	Rus. <i>pizhma</i>	?	tincture	abortion		X	Loginov (1993b)	
Asteraceae	Kar. —							
<i>Taraxacum officinale</i> F. H.Wigg. s.l.;	Rus. <i>odivanchik</i>	?	decoction	abortion		X	Loginov (1993b)	
Asteraceae	Kar. —	sap	fresh	warts	X		Pashkova (2018)	1990s, 2000s
		flowers	boiled in fat decoction,	warts	X		Pashkova (2018)	1990s, 2000s
			tincture	acne	X		Pashkova (2018)	1990s
		?	tincture	kidneys		X	Maslov (2000)	
		?	tincture	low back		X	Maslov (2000)	
<i>Tussilago farfara</i> L.;	Rus. <i>mat'-i-machekha</i>	?	infusion	cough, sore throat	X		Nikol'skaia and Surkhasko, 1994	
Asteraceae	Kar. <i>muäçehhalehti, muäçehalehti, muäçehkalehti</i>	leaves	?	abscesses	X		Nikol'skaia and Surkhasko, 1994	
			fresh	mastitis	X		Pashkova (2018)	1990s
				swelling	X		Pashkova (2018)	2000s
				abscesses	X		Taroeva (1976)	
			infusion	cough	X		Pashkova (2018)	1990s
			tincture	high temperature	X		Pashkova (2018)	1980s
			rub with soap	abscesses	X		Taroeva (1976)	
			steam in boiling water	abscesses	X		Taroeva (1976)	
<i>Impatiens</i> sp.;	Rus. <i>bal'zamin</i>	leaves,	ointment	cough	X		Pashkova (2018)	2000s
Balsaminaceae	Kar. —	flowers						
<i>Alnus incana</i> (L.) Moench; Betulaceae	Rus. <i>ol'kha</i>	flowers	infusion	stomach upset	X		Nikol'skaia and Surkhasko, 1994	
	Kar. —		decoction,	diarrhea	X		Pashkova (2018)	1980s
		bark	tincture			X	Maslov (2000)	
<i>Betula pendula</i> Roth; Betulaceae	Rus. <i>berioza</i>	leaves	infusion	toothache	X		Chesheiko (1997)	
	Kar. <i>rauvuskoivu, rauvuskoivu, rauviskoivu, raudiaiskoivu</i>		fresh	cuts	X			
(<i>Betula</i> sp.) (<i>Betula pendula</i> Roth or <i>Betula pubescens</i> Ehrh.)	Rus. <i>berioza</i>	leaves	fresh	abscesses	X		Liro (1915); Nikol'skaia and Surkhasko, 1994; Lebedeva and Tkachenko, 2016	
	Kar. <i>koivu, suokoivu</i>					X	Maslov (2000)	
			decoction	headache	X		Pashkova (2018)	1950s
			steamed	rachitis	X		Pashkova (2018)	1880s
			?	traumas	X		Lebedeva and Tkachenko, 2016	
		twigs	fresh	"wind illness"	X		Pashkova (2018)	1890s
				evil eye	X		Pashkova (2018)	1890s
			soaked	headache	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1950s, 1990s
		bath broom	soaked	lanugo	X		Pashkova (2018)	2000s
		buds	dry	infant scabies	X		Pashkova (2018)	1950s
			infusion	cuts	X		Nikol'skaia and Surkhasko, 1994	
			tincture	toothache	X		Pashkova (2018)	2000s
				cuts, wounds	X		Liro (1915); Pashkova (2018)	1990s–2010s
				cuts, wounds		X	Maslov (2000)	
				burns	X		Pashkova (2018)	1990s, 2010s
				stomachache	X		Liro (1915)	
			tincture with olive oil	furuncles	X		Pashkova (2018)	1990s
		bark	dry	pityriasis	X		Pashkova (2018)	1990s
				frostbite	X		Pashkova (2018)	1970s
				bleeding	X		Pashkova (2018)	1990s
			infusion	toothache		X	Maslov (2000)	
		sapwood	dry	burns	X		Zelenin (1941); Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1970s

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Table 2 (continued)

Plant taxa	Local name	Used part	Preparation	Treated disease	KAR	RUS	Source	Decades
		sap	fresh	cough	X		Pashkova (2018)	2000s, 2010s
				tuberculosis	X		Pashkova (2018)	2000s
		tar	fresh	dislocation	X		Nikol'skaia and Surkhasko, 1994	
				pediculosis	X		Pashkova (2018)	2000s
				scabies	X		Pashkova (2018)	2000s
				suppuration	X		Pashkova (2018)	1980s
<i>Brassica oleracea</i> L.; Brassicaceae	Rus. <i>kapusta</i> Kar. —	leaves	fresh	headache	X		Pashkova (2018)	2000s, 2010s
						X	Maslov (2000)	
				mastitis	X		Pashkova (2018)	1990s
				hematoma	X		Pashkova (2018)	2000s
			fermented	burn	X		Pashkova (2018)	1970s
<i>Brassica rapa</i> L.; Brassicaceae	Rus. <i>repa</i> Kar. —	roots	steamed	cough	X		Pashkova (2018)	2000s, 2010s
<i>Raphanus raphanistrum</i> subsp. <i>sativus</i> (L.) Domin; Brassicaceae	Rus. <i>red'ka</i> Kar. —	juice	fresh	radiculitis	X		Pashkova (2018)	2000s, 2010s
		roots	tincture	cough	X		Pashkova (2018)	2000s, 2010s
			brine	joints		X	Maslov (2000)	
<i>Campanula glomerata</i> L.; Campanulaceae	Rus. <i>kolokol'chik</i> Kar. <i>kuz'moitinkukka</i>	flowers	infusion	tonsillitis, stomatitis, gingivitis	X		Chesheiko (1997)	
<i>Campanula rotundifolia</i> L.; Campanulaceae	Rus. <i>kolokol'chik</i> Kar. <i>sorminahkaheinä,</i> <i>sorminahkuheiny</i>	aerial parts	?	anti-inflammatory and painkiller for bites, corns, other skin problems	X		Chesheiko (1997)	
<i>Campanula</i> sp.; Campanulaceae	Rus. <i>kolokol'chik</i> Kar. —	leaves	fresh	cuts	X		Pashkova (2018)	2014
<i>Cannabis sativa</i> L.; Cannabaceae	Rus. <i>konoplia</i> Kar. —	oil	apply	burns	X		Zelenin (1941); Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1970s
			apply	frostbite	X		Pashkova (2018)	
			apply	scrofula		X	Loginov (1993b)	1970s
			rub	lanugo		X	Loginov (1993b)	
		seeds	fried	burns	X		Pashkova (2018)	1860s
			ointment (+ salt and cream)	burns	X		Pashkova (2018)	1970s
<i>Linnaea borealis</i> L.; Caprifoliaceae	Rus. <i>linneia</i> Kar. <i>hivellysheinä, hiveldisheiny,</i> <i>hivelheinä, venyumäheinä, ven'uhein',</i> <i>jäsenheinä</i>	aerial parts	steam in the oven	dislocation	X		Liro (1915); Taroeva (1976); Chesheiko (1997)	
			fresh	apply	X		Liro (1915)	
			steam in hot water	stretching	X		Chesheiko (1997)	
<i>Silene dioica</i> (L.) Clairv.; Caryophyllaceae	Rus. <i>goritsvet</i> Kar. <i>varzanpolviheini</i>	?	poultices, baths	childhood rheumatism, knee joint inflammation, difficulty walking	X		Chesheiko (1997)	
<i>Silene latifolia</i> Poir.; Caryophyllaceae	Rus. <i>drioma</i> Kar. <i>juuriheinä</i>	roots	infusion	tachycardia, rheumatism, kidneys	X		Chesheiko (1997)	
<i>Stellaria media</i> (L.) Vill.; Caryophyllaceae	Rus. <i>mokritsa</i> Kar. —	juice	fresh	bone pain	X		Nikol'skaia and Surkhasko, 1994	
				furuncles	X		Nikol'skaia and Surkhasko, 1994	
		leaves	fresh	abscesses, furuncles	X		Lebedeva and Tkachenko, 2016; Pashkova (2018)	1950s, 1960s, 1980s
<i>Juniperus communis</i> L.; Cupressaceae	Rus. <i>mozhzhevel'nik obyknovennyi</i> Kar. —	branches	?	cold	X		Lebedeva and Tkachenko, 2016	
<i>Pteridium aquilinum</i> (L.) Kuhn; Dennstaedtiaceae	Rus. <i>ortiak</i> Kar. <i>rautaheinä, raudaheinä,</i> <i>rauvanheinä, rauduheiny, raudhein'</i>	?	?	cuts	X		Chesheiko (1997)	
<i>Drosera</i> sp.; Droseraceae	Rus. <i>rosianka</i> Kar. <i>naizienpaganahainä,</i> <i>naizienpaganheiny, pakanheinä</i>	leaves	?	trachoma	X		Linkola (1914)	
		aerial parts	?	warts	X		Lebedeva and Tkachenko, 2016	
		?	?	eye diseases	X		Chesheiko (1997)	
<i>Equisetum hyemale</i> L.; Equisetaceae	Rus. <i>khvoshch</i> Kar. <i>rautakorteh, raudakorteh</i>	?	?	female contraceptive cuts	X		Chesheiko (1997)	
<i>Pyrola</i> sp.; Ericaceae	Rus. <i>grushanka</i> Kar. <i>luugriziheiny</i>	aerial parts	extract	rheumatism	X		Chesheiko (1997)	
<i>Rhododendron</i> <i>tomentosum</i> subsp. <i>tomentosum</i> ; Ericaceae	Rus. <i>bagul'nik</i> Kar. <i>pakkuli, kanerva, kannervo,</i> <i>suokanerva</i>	?	decoction	heartburn stomachache	X		Taroeva (1976) Taroeva (1976)	
		branches	decoction	cough	X		Liro (1915)	
				pain in chest	X		Liro (1915)	

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Table 2 (continued)

Plant taxa	Local name	Used part	Preparation	Treated disease	KAR	RUS	Source	Decades
<i>Vaccinium myrtillus</i> L.; Ericaceae	Rus. <i>chernika</i> Kar. <i>mussikka</i>	fruit	dry	stomach upset	X		Nikol'skaia and Surkhasko, 1994	
				stomachache	X		Taroeva (1976); Pashkova (2018)	1950s, 1990s, 2000s
				diarrhea ?	X	X	Taroeva (1976) Loginov (1993a)	
				tincture	X		Pashkova (2018)	1860s, 1960s, 1970s
<i>Vaccinium oxycoccos</i> L.; Ericaceae	Rus. <i>kliukva</i> Kar. <i>garbalo</i>	?	decoction fresh	stomach upset		X	Maslov (2000)	
				juice	X		Nikol'skaia and Surkhasko, 1994	
				abscesses, furuncles eczema	X X		Pashkova (2018) Pashkova (2018)	2000s 2000s
		fruit	fresh (+ honey) fresh	cough	X		Pashkova (2018)	2000s
				scurvy	X		Pashkova (2018)	1920s, 1940s, 2000s
				blood pressure cough, influenza	X X		Taroeva (1976) Pashkova (2018)	2000s, 2010s
<i>Vaccinium vitis-idaea</i> L.; Ericaceae	Rus. <i>brusnika</i> Kar. <i>buola, brunitsa, buolukka</i>	?	decoction jam	blood pressure	X		Taroeva (1976)	
				fruit	X		Taroeva (1976)	
		?	decoction ? (put in the ears)	vitamins		X	Maslov (2000)	
				fruit	X		Nikol'skaia and Surkhasko, 1994	
				heartburn	X		Taroeva (1976)	
		?	fresh (put in the ears) fresh (eaten) fresh (apply)	fainting in <i>banya</i> headache	X X		Liro (1915)	
				fainting in <i>banya</i> otitis	X X		Taroeva (1976) Pashkova (2018)	2000s, 2010s
				scurvy	X		Pashkova (2018)	1920s, 1940s, 2000s
				mors	X		Pashkova (2018)	2000s
				heartburn	X		Pashkova (2018)	2000s
				angina pectoris	X		Pashkova (2018)	2010s
cough	X				Pashkova (2018)	2000s, 2010s		
?	decoction	vitamins		X	Maslov (2000)	2000s		
?	decoction	convulsions in infants		X	Loginov (1993b)			
<i>Hedysarum</i> sp.; Fabaceae	Rus. <i>kopechnik</i> Kar. —	?	?	evil eye, witchcraft	X		Chesheiko (1997)	
<i>Lathyrus pratensis</i> L.; Fabaceae	Rus. <i>china</i> Kar. <i>suudelushheinä, suudelushheiny</i>	?	?	evil eye, witchcraft	X		Chesheiko (1997)	
<i>*Phaseolus vulgaris</i> L.; Fabaceae	Rus. <i>fasol'</i> Kar. —	fruit	infusion	cough	X		Pashkova (2018)	1860s
<i>Senna</i> sp.; Fabaceae	Rus. <i>senna</i> Kar. —	?	decoction	hygiene	X		Litvin and Minvaleev, 2017 Pashkova (2018)	2000s, 2010s
<i>Trifolium</i> sp.; Fabaceae	Rus. <i>klever</i> Kar. —	flowers	tincture	headache	X		Pashkova (2018)	2000s, 2010s
<i>Quercus</i> sp.; Fagaceae	Rus. <i>dub</i> Kar. —	bark	decoction	candidiasis	X		Pashkova (2018)	2000s
				fresh	X		Pashkova (2018)	2000s
				dry	X		Pashkova (2018)	1920s
<i>Geranium sylvaticum</i> L.; Geraniaceae	Rus. <i>geran'</i> Kar. <i>ailasheinä, ailasheiny, pissosheinä, pistosheiny, roan' iheinä, ruan' iheinä, ruan' iheiny</i>	heartwood aerial parts	infusion	wounds, bites, pain in the side, heart pain	X		Chesheiko (1997)	
				?	?	osteomyelitis, rheumatism, phalangeal joint swelling	X	
<i>Ribes nigrum</i> L.; Grossulariaceae	Rus. <i>chiornaia smorodina</i> Kar. —	juice	infusion fresh	evil eye, witchcraft	X		Chesheiko (1997)	
				headache	X		Pashkova (2018)	2000s
<i>Hypericum</i> sp.; Hypericaceae	Rus. <i>zveroboi</i> Kar. <i>kulkkuheinä, kuzmanpaizeheinä</i>	?	tincture	goiter	X		Pashkova (2018)	2000s
				tonsillitis	X		Chesheiko (1997)	
				abortion		X	Loginov (1993b)	
		infusion	high temperature cough, sore throat	X		Pashkova (2018)	1980s	
				X		Nikol'skaia and Surkhasko, 1994		
				X		Zelenin (1941)		
<i>Galeopsis</i> sp.; Lamiaceae	Rus. <i>pikul'nik</i> Kar. —	leaves	infusion	cough, sore throat	X		Pashkova (2018)	2000s
				candidiasis	X		Pashkova (2018)	2000s
				abscesses, furuncles	X		Chesheiko (1997)	
				cough	X		Pashkova (2018)	1970s, 2000s
<i>Leonurus cardiaca</i> L.; Lamiaceae	Rus. <i>pustyrnik</i> Kar. —	?	tincture	abortion		X	Loginov (1993b)	
<i>Mentha</i> sp.; Lamiaceae	Rus. <i>mitata</i> Kar. —	leaves	infusion	heartache	X		Pashkova (2018)	2000s
					X		Pashkova (2018)	2000s, 2010s
<i>*Origanum</i> sp.; Lamiaceae	Rus. <i>dushmanka</i> Kar. —	flowers	decoction	headache	X		Pashkova (2018)	2000s, 2010s

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Table 2 (continued)

Plant taxa	Local name	Used part	Preparation	Treated disease	KAR	RUS	Source	Decades
* <i>Thymus serpyllum</i> L.; Lamiaceae	Rus. <i>bogoroditskaia</i> Kar. —	?	decoction	cough, sore throat	X		Zelenin (1941)	
<i>Cinnamomum camphora</i> (L.) J.Presl; Lauraceae	Rus. <i>kamfora</i> Kar. —	oil		high temperature	X		Pashkova (2018)	1980s
<i>Lycopodium annotinum</i> L.; Lycopodiaceae	Rus. <i>plavn, deriaba, plavnik</i> Kar. <i>kriisiheinä, griiziheinä, griiziheiny</i>	?	infusion, tincture	hernia	X		Chesheiko (1997)	
		spores	?	cuts	X		Nikol'skaia and Surkhasko, 1994	
<i>Tilia</i> sp.; Malvaceae	Rus. <i>lipa</i> Kar. —	flowers	decoction	sore throat	X		Pashkova, 2018	2000s
		leaves	dry	cough bleeding	X X		Pashkova (2018) Pashkova (2018)	2000s, 2010s 2000s, 2010s
<i>Paris quadrifolia</i> L.; Melanthiaceae	Rus. <i>voronii glaz</i> Kar. <i>roan'ihainä, ruan'ihainä, ruan'ihainy</i>	?	?	osteomyelitis, rheumatism, phalangeal joint swelling	X		Chesheiko (1997)	
* <i>Nymphaea</i> sp.; Nymphaeaceae	Rus. <i>kuvshinka</i> Kar. —	fruit leaves	fresh decoction	hernia high temperature	X X		Chesheiko (1997) Pashkova (2018)	2000s
<i>Olea europaea</i> L.; Oleaceae	Rus. <i>dereviannoe maslo</i> Kar. —	flowers oil	fresh ?	burn eye pain	X X		Pashkova (2018) Pashkova (2018)	1950s 1920s
<i>Syringa</i> sp.; Oleaceae	Rus. <i>siren'</i> Kar. —	flowers	decoction	acne	X		Pashkova (2018)	1990s
			fresh	acne	X		Pashkova (2018)	1990s
<i>Epilobium angustifolium</i> L.; Onagraceae	Rus. <i>kiprei</i> Kar. <i>rautaheinä, raudaheinä, rauvanheinä, rauduheiny, raudhein'</i>	?		cuts	X		Chesheiko (1997)	
<i>Rhinanthus</i> sp.; Orobanchaceae	Rus. <i>pogremok</i> Kar. <i>puhallušeinä</i>	?	steam in water	swellings	X		Chesheiko (1997)	
<i>Chelidonium majus</i> L.; Papaveraceae	Rus. <i>chistotel, zhguchaia trava</i> Kar. —	juice	fresh	leucoma corns	X X		Pashkova (2018) Pashkova (2018)	2000s 2000s
		aerial parts	decoction	preventing pregnancy abscesses	X		Litvin and Minvaleev, 2017 Chesheiko (1997)	
<i>Peltigera</i> sp.; Peltigeraceae	Rus. <i>pel'tigera</i> Kar. <i>ajosheiny, kangaslehti</i>	?	?	chest pain	X		Liro (1915)	
<i>Picea</i> sp.; Pinaceae	Rus. <i>el'</i> Kar. <i>kuuzi</i>	resin	fresh	scabies	X		Pashkova (2018)	2000s
			warmed mix with soap boil	abscesses, furuncles abscesses, furuncle abscess, furuncles	X X X		Pashkova (2018) Taroeva (1976) Taroeva (1976)	1950s
		bark	dry	diaper rash	X		Pashkova (2018)	2000s
		cones	fresh, dry	night anxiety in infants	X		Pashkova (2018)	1999s
		needles	tincture	stomachache	X		Pashkova (2018)	1980s, 2000s
		cambium	?	foot skin suppuration	X		Nikol'skaia and Surkhasko, 1994	
<i>Pinus sylvestris</i> L.; Pinaceae	Rus. <i>sosna</i> Kar. —	resin	boil	abscesses	X		Nikol'skaia and Surkhasko, 1994	
			fresh	scabies	X		Pashkova (2018)	2000s
				cuts	X		Pashkova (2018)	1950s
		twigs	steamed	joints	X		Pashkova (2018)	1950s
				evil eye	X		Pashkova (2018)	1960s
		needles	tincture	stomachache	X		Pashkova (2018)	2000s
				headache	X		Pashkova (2018)	1910s
			decoction	scurvy	X		Pashkova (2018)	1920s, 1940s, 2000s
		bough	fresh	scabies	X		Pashkova (2018)	1990s
		buds	?	abscesses, furuncles	X		Pashkova (2018)	1860s
			infusion	rheumatism	X		Nikol'skaia and Surkhasko, 1994	
<i>Plantago major</i> L.; Plantaginaceae	Rus. <i>podorozhnik</i> Kar. <i>rautaheinä, rahvaanlehti, raudaheinä, tielehti, rauvanheinä, rauduheiny, raudhein', rautalehti, raudalehti, puhallušeinä, podorožniekka, podorožniekku, dorogalehti, kakkara, kakkarailehti, lehtiheinä, maakakkara, muaalehti</i>	leaves	fresh	cuts		X	Loginov (2009)	
				abscesses, furuncles	X		Chesheiko (1997); Pashkova (2018)	2010s
				abscesses, furuncles	X		Liro (1915); Taroeva (1976); Pashkova (2018)	1960s
				hematoma	X		Pashkova (2018)	2000s
				bleeding	X		Pashkova (2018)	2000s, 2010s

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Table 2 (continued)

Plant taxa	Local name	Used part	Preparation	Treated disease	KAR	RUS	Source	Decades
				wounds	X		Pashkova (2018)	2010s
				swellings	X		Liro (1915); Taroeva (1976)	
			steam in water	swellings	X		Chesheiko (1997)	
			tincture	stomachache	X		Pashkova (2018)	1950s, 1990s, 2000s
				whooping cough	X		Pashkova (2018)	2000s
				tuberculosis	X		Pashkova (2018)	2000s
				high temperature	X		Pashkova (2018)	19830s
			decoction	acne	X		Pashkova (2018)	1990s
			?	abscesses	X		Nikol'skaia and Surkhasko, 1994	
		juice	fresh	cough	X		Pashkova (2018)	2000s, 2010s
				abscesses, furuncles	X		Pashkova (2018)	1960s
				hematoma	X		Pashkova (2018)	2000s
		?	infusion	cough, sore throat	X		Nikol'skaia and Surkhasko, 1994	
<i>Elymus repens</i> (L.) Gould; Poaceae	Rus. — Kar. <i>vehmys</i>	?	apply after correcting dislocation	arm dislocation	X		Taroeva (1976)	
<i>Nardus stricta</i> L.; Poaceae	Rus. <i>belous</i> Kar. <i>rautaheinä, raudaheinä, rauvanheinä, rauduheiny, raudhein'</i>	?	?	cuts	X		Chesheiko (1997)	
<i>Secale cereale</i> L.; Poaceae	Rus. <i>rozh'</i> Kar. —	seeds (flower)	fermented	cough	X		Pashkova (2018)	1860s
<i>Persicaria lapathifolia</i> (L.) Delarbre; Polygonaceae	Rus. <i>gorets</i> Kar. <i>varzanpolviheini</i>	?	poultices, baths	child rheumatism, knee joint inflammation, difficulty walking	X		Chesheiko (1997)	
<i>Rumex longifolius</i> DC.; Polygonaceae	Rus. <i>shchavel'</i> Kar. <i>tuliheinä, tuliheiny</i>	leaves	boil	burns	X		Chesheiko (1997)	
		roots	fresh	swellings	X		Chesheiko (1997)	
<i>Polypodium vulgare</i> L.; Polypodiaceae	Rus. <i>mnogonozhka</i> Kar. <i>puhallusheinä</i>	?	steam in water	swellings	X		Chesheiko (1997)	
<i>Alchemilla xanthochlora</i> Rothm.; Rosaceae	Rus. <i>manzhetka</i> Kar. <i>pöhöheinä, roan'iheinä, ruan'iheinä, ruan'iheiny, suudelushheinä, suudelushheiny</i>	?	infusion	gastrointestinal tract osteomyelitis, rheumatism, phalangeal joint swelling	X		Chesheiko (1997)	
				erysipelas	X		Chesheiko (1997)	
				evil eye, witchcraft	X		Chesheiko (1997)	
<i>Aronia melanocarpa</i> (Michx.) Elliott; Rosaceae	Rus. <i>chernoplodnaia riabina</i> Kar. —	fruit	fresh	scurvy	X		Pashkova (2018)	2000s–2010s
<i>Comarum palustre</i> L.; Rosaceae	Rus. <i>sabel'nik bolotnyi</i> Kar. —	?	?	joint ache	X		Lebedeva and Tkachenko, 2016	
<i>Filipendula ulmaria</i> (L.) Maxim.; Rosaceae	Rus. <i>labaznik viazolistnyi</i> Kar. —	shoots	?	leaver diseases	X		Lebedeva and Tkachenko, 2016	
* <i>Fragaria × ananassa</i> (Duchesne ex Weston) Duchesne ex Rozier; Rosaceae	Rus. <i>klubnika</i> Kar. —	leaves	infusion	cough	X		Chesheiko (1997)	
* <i>Fragaria vesca</i> L.; Rosaceae	Rus. <i>zemlianka</i> Kar. —	leaves	tincture	scurvy	X		Pashkova (2018)	1920s, 1940s, 2005
<i>Potentilla erecta</i> (L.) Raeusch.; Rosaceae	Rus. <i>lapchatka, kalgan</i> Kar. <i>syväinjuriheiny, krontseheinä, prütoffheinä, mataro</i>	?	boil in milk	stomachache	X		Liro (1915)	
		roots	tincture	gastrointestinal tract	X		Chesheiko (1997); Nikol'skaia and Surkhasko, 1994	
				diarrhea	X		Pashkova (2018)	1860s, 1970s
				toothache	X		Pashkova (2018)	2000s–2010s
				hernia	X		Nikol'skaia and Surkhasko, 1994	
<i>Prunus padus</i> L.; Rosaceae	Rus. <i>cheriomukha</i> Kar. <i>tuomenmarja</i>	bark	dry, soak	cuts		X	Loginov (2009)	
			decoction, infusion	diarrhea	X		Pashkova (2018)	1980s
		fruit	dry	stomach upset	X		Nikol'skaia and Surkhasko, 1994	
				stomachache	X		Taroeva (1976); Pashkova (2018)	1990s
				?		X	Loginov (1993a)	
			fresh	stomachache	X		Pashkova (2018)	1990s
			infusion	diarrhea	X		Pashkova (2018)	1980s
		flowers	decoction	eye suppuration	X		Pashkova (2018)	2000s
		?	decoction	snake bites	X		Pashkova (2018)	1980s

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Table 2 (continued)

Plant taxa	Local name	Used part	Preparation	Treated disease	KAR	RUS	Source	Decades
<i>Rosa</i> sp.; Rosaceae	Rus. <i>shipovnik</i>	fruit	tincture	stomach upset	X	X	Maslov (2000)	
	Kar. <i>kukonmarja, kukon marja, hukanmarja, kukonvarba, kukonvarpaat, kukonvarvas, pisteliaheinä, pjetuuschnik, sipovnikku</i>	leaves	steamed in oven (to wash and drink)	scurvy	X		Pashkova (2018)	
		flowers	kept in the sun in a bottle (apply)	scrofula	X	X	Taroeva (1976)	
		?	?	vitamins	X		Maslov (2000)	
<i>Rubus chamaemorus</i> L.; Rosaceae	Rus. <i>moroshka</i>	fruit	soaked	scrofula	X		Taroeva (1976)	
	Kar. <i>hillon tuppi</i>	unripe fruit	fresh	scurvy	X		Pashkova (2018)	2000s
		sepals	dry, then infusion	cold	X		Taroeva (1976)	
<i>Rubus idaeus</i> L.; Rosaceae	Rus. <i>malina</i> Kar. <i>vagarmo, malina, muamalina</i>	?	decoction	cough	X		Lebedeva and Tkachenko, 2016;	1970s
		twigs with berries	dry, then infusion	headache	X	X	Pashkova (2018)	
		leaves	decoction	ear pain	X		Taroeva (1976)	
		?	decoction	vitamins	X	X	Maslov (2000)	
		sepals	infusion	cold	X		Nikol'skaia and Surkhasko, 1994	
		fruit	dry	cough	X		Taroeva (1976)	
		jam	infusion	acne	X		Pashkova (2018)	2000s
		decoction	decoction	high temperature	X		Pashkova (2018)	1990s
		decoction	decoction	sore throat	X		Pashkova (2018)	2000s
		decoction	decoction	? sore throat	X	X	Pashkova (2018)	2000s
<i>Rubus saxatilis</i> L.; Rosaceae	Rus. <i>kostianika</i>	leaves	drink with tea	cough	X		Loginov (1993a)	
	Kar. <i>hillunkainen, himmunkainen, kostenitsa, linnunkainen, lumarja, villunkainen</i>	fruit	fresh	back pain	X		Pashkova (2018)	2000s
<i>Sorbus aucuparia</i> L.; Rosaceae	Rus. <i>riabina</i> Kar. <i>pihlajanmarja, pihjalanmarju, r'abiina, rebiina, pihlaja</i>	fruit	infusion	headache	X		Liro (1915);	
			tincture	headache	X		Nikol'skaia and Surkhasko, 1994	1990s
			fresh	high temperature	X		Pashkova (2018)	1980s
			stomachache	warts	X		Pashkova (2018)	1990s
			headache	stomachache	X		Pashkova (2018)	1990s, 2000s
			dry	stomachache	X		Liro (1915)	
			boil with sugar	? blood pressure	X	X	Pashkova (2018)	1990s
<i>Galium</i> sp.; Rubiaceae	Rus. <i>podmarennik</i>	?	infusion	anti-inflammatory, diuretic	X		Loginov (1993a)	
	Kar. <i>hikiheinä</i>		decoction		X		Liro (1915);	
<i>Populus tremula</i> L.; Salicaceae	Rus. <i>osina</i>	bark	dry	high temperature	X		Taroeva (1976)	2000s–2010s
<i>Salix</i> sp.; Salicaceae	Kar. —		infusion	toothache	X	X	Pashkova (2018)	
	Rus. <i>iva</i>	?	decoction	jaundice	X		Maslov (2000)	2000s
<i>Acer</i> sp.; Sapindaceae	Kar. —	bark	?	abscesses	X		Pashkova (2018)	1970s
	Rus. <i>klion</i>	sap	fresh	cough	X		Pashkova (2018)	2000s
Selaginella selaginoides (L.) P. Beauv. ex Mart. & Schrank	Rus. <i>plauнок chesuelistnyi</i>	?	steam in milk	hernia	X		Liro (1915)	
* <i>Capsicum annuum</i> L.; Solanaceae	Kar. <i>grischna travaa, grisiheinä, kroncheheinä</i>				X			
	Rus. <i>perets</i>	fruit	tincture	cuts	X		Pashkova (2018)	1950s
<i>Nicotiana tabacum</i> L.; Solanaceae	Kar. —			cough, high temperature	X		Pashkova (2018)	1950s
	Rus. <i>tabak</i>	leaves	burned	otitis	X		Pashkova (2018)	1950s, 2000s
	Kar. —		ointment	navel prolapse	X		Pashkova (2018)	2000s

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Table 2 (continued)

Plant taxa	Local name	Used part	Preparation	Treated disease	KAR	RUS	Source	Decades
<i>Solanum tuberosum</i> L.; Solanaceae	Rus. <i>kartofel'</i> Kar. —	roots	decoction	lice	X		Pashkova (2018)	2010s
			dry	high temperature	X		Pashkova (2018)	2000s–2010s
			fresh	hernia	X		Pashkova (2018)	1970s
			fresh	abscesses, furuncles	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	2000s–2010s
			frozen	frostbite	X		Pashkova (2018)	2000s
			starch	intertrigo	X		Pashkova (2018)	2000s
				rash, infant scabies	X		Pashkova (2018)	1950s
			sepals	cough	X		Pashkova (2018)	2000s, 2010s
			flowers	cough	X		Pashkova (2018)	2000s, 2010s
			fruit, seeds	hernia	X		Chesheiko (1997)	
<i>Daphne mezereum</i> L.; Thymelaeaceae	Rus. <i>volchie lyko</i> Kar. <i>krisimarja, grizimarja, krijenmarja, grijenmarja, grid' d'emmarju, keänmarja, kiänmarja, kägemmarja, kägöinmarja, kägöinmarju, keänmarjapuu, käginmarja</i>	seeds	?	navel pain	X		Liro (1915)	
			drunk in milk	stomachache	X		Liro (1915)	
			infusion	stomach upset	X		Nikol'skaia and Surkhasko, 1994	
			tincture	rachitis	X		Pashkova (2018)	1970s
				navel pain	X		Liro (1915)	
				skin diseases	X		Liro (1915)	
			ointment	navel prolapse	X		Pashkova (2018)	1920s
				hernia	X		Pashkova (2018); Taroeva (1976)	1950s
			dry	toothache	X		Pashkova (2018)	2000s–2010s
			decoction, tincture	diarrhea	X		Pashkova (2018)	1980s
<i>Sparganium</i> sp.; Typhaceae	Rus. <i>ezhegolovka</i> Kar. <i>venymäheinä, ven'uhein'</i>	?	steam in hot water	stretching	X		Chesheiko (1997)	
			infusion	cold	X		Nikol'skaia and Surkhasko, 1994	
			decoction	acne	X		Pashkova (2018)	1990s
			fresh	bleeding	X		Pashkova (2018)	2000s
			tincture	cuts	X		Pashkova (2018)	2000s
			fresh	rheumatism	X		Pashkova (2018)	2000s
			decoction	preventing pregnancy	X		Litvin and Minvaleev, 2017	
			rub in before <i>banya</i>	“bad blood”	X		Liro (1915)	
			dry, then steam and rub	pain in legs	X		Liro (1915)	
			juice	swellings	X		Liro (1915)	
<i>Urtica</i> sp.; Urticaceae (<i>Urtica dioica</i> L. or <i>Urtica urens</i> L.)	Rus. <i>krapiva</i> Kar. <i>kropiina, cüilahainen, cüilahanen, cüiläheinä, cüilajainen</i>	leaves	infusion	cold	X		Nikol'skaia and Surkhasko, 1994	
			decoction	acne	X		Pashkova (2018)	1990s
			fresh	bleeding	X		Pashkova (2018)	2000s
			tincture	cuts	X		Pashkova (2018)	2000s
			fresh	rheumatism	X		Pashkova (2018)	2000s
			decoction	preventing pregnancy	X		Litvin and Minvaleev, 2017	
			rub in before <i>banya</i>	“bad blood”	X		Liro (1915)	
			dry, then steam and rub	pain in legs	X		Liro (1915)	
			juice	swellings	X		Liro (1915)	
			fresh	furuncles	X		Nikol'skaia and Surkhasko, 1994	
algae	Rus. <i>vodorosli</i> Kar. —	thallus	fresh	scabies	X		Pashkova (2018)	1920s
berries	Rus. <i>iagody</i> Kar. —	juice	fresh	scrofula		X	Loginov (1993b)	
flower pollen	Rus. <i>pyl'tsa</i> Kar. —	pollen	mixed with dew	hernia		X	Loginov (1993b)	
fern	Rus. <i>paporotnik</i> Kar. —	roots	tincture	stomach upset		X	Maslov (2000)	
“herb against dislocation”	Rus. <i>trava ot vyvikha</i> Kar. <i>hivel' hei</i>	stems, leaves	steamed	dislocation	X		Pashkova (2018)	2000s–2010s
meadow grass	Rus. <i>lugovaia trava</i> Kar. —	aerial parts	fresh	cold	X		Pashkova (2018)	1930s
white moss	Rus. <i>belyi mokh</i> Kar. —	?	fresh	abscesses, furuncles	X		Pashkova (2018)	2000s–2010s
red moss	Rus. <i>krasnyi mokh</i> Kar. —	?	fresh	abscesses, furuncles	X		Pashkova (2018)	2000s–2010s
winter cereals	Rus. <i>ozimye</i> Kar. <i>orahat</i>	young shoots	decoction	jaundice	X		Pashkova (2018)	2000s
aftergrass	Rus. <i>otava</i> Kar. —	young shoots	infusion	constipation	X		Taroeva (1976)	
straw	Rus. <i>soloma</i> Kar. —	stems	decoction	jaundice	X		Pashkova (2018)	2000s
hay	Rus. <i>seno</i> Kar. —	stems, leaves	bound in three knots	warts	X		Pashkova (2018)	1920s
			steamed	colic	X		Zelenin (1941); Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1940s
“pink flower”	Rus. <i>rozovyi tsvetok</i> Kar. <i>cveta roosovoi</i>	flowers	rose water (?)	pain in the ears	X		Taroeva (1976)	
?		?	?	cuts	X		Leskov (1893)	

(continued on next page)

Table 2 (continued)

Plant taxa	Local name	Used part	Preparation	Treated disease	KAR	RUS	Source	Decades
	Rus. —							
	Kar. <i>ravde-heine</i>							
?	Rus. —	?	?	stomach disorder	X		Leskov (1893)	
	Kar. <i>urchoi-heine</i>							
?	Rus. —	?	?	scabies	X		Leskov (1893)	
	Kar. <i>kuvzi-lehti</i>							
?	Rus. —	?	?	colic	X		Leskov (1893)	
	Kar. <i>ailaz-heine</i>							
?	Rus. <i>rastitel' NOE maslo</i>	oil	drink	hernia	X		Taroeva (1976)	
	Kar. <i>siemenvoi</i>		apply	burn	X		Taroeva (1976)	
				pain in the joints	X		Taroeva (1976)	
?	?	corns	<i>vodka</i>	toothache	X		Zelenin (1941)	

1893: 434). Sixty-three plants (out of 104) are mentioned in only one source – mostly by Chesheiko (1997) and Pashkova (2018), who seem to be the only authors that paid special attention to phytomedicine.

As can be seen in Table 3, animal remedies hardly overlap among Russians and Karelians. Bear fat, human saliva, and human milk are the only examples. Physiological discharge of the human body is the most popular in these groups (32 uses in Karelians and 6 in Russians). From the wild, fish oil and bear body parts were the most used remedies, while from the household, cow, horse, and dog were the most used. We recorded 12 cow uses, 10 fish uses, and 8 bear uses among Karelians. In Russians, bear fat, sheep fat, cow butter, and yeast were mentioned once each. Animal remedies were mostly used for healing furuncles (11 uses), scrofula (8), frostbite (8), hernia (7), and lanugo (7).

Among minerals, Russians sometimes used the same remedies as Karelians (earth, salt), but for different diseases (Table 4). Salt was the most diversely used remedy in this group (11 uses in Karelians and 3 in Russians), while the second most popular remedy was kerosene (5; only in Karelians). We also found three uses of earth in Karelians, and one use each of earth and sugar in Russians. Mineral remedies were mostly believed to help scrofula (5 uses), pediculosis (4), and toothache (4). In general, mineral remedies did not have leading role – 43 total uses for the two ethnic groups. Still, this note concerns only the number of different uses; it is clear that substances such as salt, chalk, clay, and earth were available to everyone and could thus be applied very widely.

Physiotherapy and magic also played important roles in the folk medicine of Karelia, but they do not fall within the scope of the journal and thus will be discussed in a separate article. We should note, however, that in the actual use of magic the two groups hardly overlap. They sometimes used the same remedies, but for different diseases. Only three physiotherapy remedies were shared by both ethnic groups: steaming in the *banya* for a cold, massage with soap for dislocation, and rubbing with a silk cloth for lanugo.

5. Conclusion

This review presents rich data on medical remedies that have been used in the territory of modern-day Republic of Karelia, Russian Federation. The main corpus of medicinal remedies consists of plants – perhaps due to the special attitude of authorities; animal and mineral remedies are not as numerous. The predominant taxa among Karelians are *Betula* sp., *Plantago* spp., and *Rubus idaeus* L.; among Russians only *Betula* sp. and *Prunus padus* L. have more than two uses. Physiological discharge of the human body is the most popular in both groups (32 uses in Karelians and 6 in Russians). From the others, we recorded 12 cow uses, 10 fish uses, and 8 bear uses among Karelians; in Russians, bear and sheep fat, cow butter, and yeast were mentioned. Among minerals,

salt was the most diversely used remedy (11 uses in Karelians and 3 in Russians), while the second most popular remedy was kerosene (5; only in Karelians).

The data on Karelian folk medicine is much more representative than that of Russians in the same area. This can be explained by the personal interests of several researchers on this topic with regard to the Karelian material and the absence of carefully conducted research among Russians. The research by T. Pashkova carried out for Karelian folk medicine clearly demonstrates that a significant portion of the data has been obtained in the 20th–21st centuries.

Working with sources, in contrast to field work, has its own specifics. Modern methods of ethnobotanical research were formed not so long ago, and we cannot apply them to archival or ethnographic data. Studying the history of medicine, we do not have the opportunity to interview a comparable number of informants across all age, sex or ethnic groups, ask them clarifying questions or require them to show us the plants they are referring to and later identify them. In addition, the available data was collected with different methods which makes it difficult to compare and analyze.

The study of ethnic groups divided by state borders puts forward additional challenges to researchers. For example, it requires checking data available in two (sometimes more) countries and, consequently, to have an international team able to read and analyze data in several languages.

Another difficulty is that plant names are only given in local language(s), no Latin names and no herbal specimens are provided. In such cases, one has to apply triangulation, that is to juxtapose a dialectal name, a description of the plant's features, data on its medical use (in comparison with field data), the flora of a given region, and the herbarium specimens collected during fieldwork in the area under research. The issue is even more salient in the case of disease names. Many local terms have deep mythological bases; some of them are already out of use and can hardly be aligned with modern international terminology.

While discussing the intersection of official and folk medicine, it is also worth considering the points of view of all possible actors – the church (state and alternative faiths), teachers, officials, etc. Legislation should also be analyzed, but adopted laws were not always followed in practice. Although all folk medicine should be viewed as a system, one should not forget that various parts of it may have provoked the resentment of doctors or officials to varying degrees; and as a result, they were persecuted or supported to varying degrees as well.

We hope our observations and working methods will be of particular benefit in communities that changed their confessional system or state affiliation in the (relatively) recent past, and/or where the state health care system is still being developed, and so the intersection of official and folk medicines is happening in front of our eyes.

Table 3
Remedies of animal origin.

English name and Latin name	Remedy/Body part	Preparation	Treated disease	KAR	RUS	Source	Decades
ant	acid	rub fresh	legs	X		Taroeva (1976)	
Formicidae Latreille, 1802	oil	compress	loin	X		Taroeva (1976)	
	ants	apply steamed	pain in the eye	X		Pashkova (2018)	1920s
	anthill	put in barrel and warm	rheumatism	X		Pashkova (2018)	1930s
			joints	X		Taroeva (1976)	
badger	fat	apply	legs	X		Taroeva (1976)	
<i>Meles meles</i> Linnaeus, 1758			scuffs on the feet	X		Nikol'skaia and Surkhasko, 1994	
			calluses (on feet)	X		Pashkova (2018)	1990s
	meat	eat	phthisis	X		Pashkova (2018)	1950s, 2000s
	eat	eat	phthisis	X		Pashkova (2018)	1950s, 2000s
bear	claw	scrape and pour	walleye	X		Pashkova (2018)	1890s
<i>Ursus arctos</i> Linnaeus, 1758	fat	apply	furuncles	X		Nikol'skaia and Surkhasko, 1994	
			burns	X		Pashkova (2018)	1950s
			attrition	X		Pashkova (2018)	1950s
			hernia	X		Pashkova (2018)	1950s
		?	?		X	Loginov (2006)	
	muzzle	massage	colic	X		Pashkova (2018)	1990s
	paw	massage (dried)	colic	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1990s
	skull	spit through the skull	cough	X		Pashkova (2018)	1950s
beaver	leather	compress	furuncles	X		Pashkova (2018)	1950s, 1980s
<i>Castor fiber</i> Linnaeus, 1758							
bee	honey	drink with herbs	cough, sore throat	X		Zelenin (1941)	
<i>Apis mellifera</i> Linnaeus, 1758		apply	candidiasis	X		Pashkova (2018)	1950s, 1990s, 2000s
cat	cat	kill and put the chilblain inside	frostbite	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1910s
<i>Felis silvestris</i> subsp. <i>catus</i> Linnaeus, 1758	claws	burn and pour	scratches	X		Pashkova (2018)	1950s, 1970s
	hair	thread into needle and pierce	furuncles	X		Pashkova (2018)	1950s
	tail	rub	runny nose	X		Pashkova (2018)	1950s, 2000s
	testicles	boil in milk and drink	hernia	X		Taroeva (1976)	
clam	clam	rub in fresh	pain in the eye	X		Pashkova (2018)	1920s
Mollusca Linnaeus, 1758							
cow	fat	apply melted	burns	X		Pashkova (2018)	1980s
<i>Bos taurus</i> Linnaeus, 1758	clabber	drink	constipation	X		Taroeva (1976)	
	manure	apply	furuncles	X		Pashkova (2018)	1950s, 1990s
	milk	wash	eye suppuration	X		Pashkova (2018)	2000s
		apply	hernia	X		Pashkova (2018)	1700s
	froth of boiled milk	apply	furuncles	X		Nikol'skaia and Surkhasko, 1994	
	rectum	apply (dried and soaked)	furuncles	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1950s, 1980s
	stomach	apply (dried and soaked)	furuncles	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1950s, 1980s
	butter	apply	scrofula		X	Loginov (1993b)	
	cream	drink	ringworm	X		Nikol'skaia and Surkhasko, 1994	
		apply	"forest nose"	X		Ivanova (2012)	
			chilblains	X		Pashkova (2018)	1950s, 1980s, 2000s
	sour cream	apply	furuncles	X		Nikol'skaia and Surkhasko, 1994	
crayfish	crayfish	dried water with crayfish	cancer	X		Taroeva (1976)	
<i>Astacus leptodactylus</i> Eschscholtz, 1823; <i>Astacus astacus</i> Linnaeus, 1758							
dog	dog	licking	dog bite	X		Pashkova (2018)	1950s, 1980s
<i>Canis lupus</i> Linnaeus, 1758			hordeum	X		Pashkova (2018)	1950s, 1960s
			furuncles	X		Pashkova (2018)	2000s
	blood	apply	hernia	X		Pashkova (2018)	1950s, 1980s
	tail	rub	hordeum	X		Pashkova (2018)	1950s, 1980s
	tooth	tie up	dog bite	X		Pashkova (2018)	1950s, 1970s
	wool	knit into socks	rheumatism	X		Pashkova (2018)	1900s, 2000s
duck	fat (of black duck)	apply melted	frostbite	X		Pashkova (2018)	1950s, 1980s
Anatidae Vigors, 1825							
earthworms Lumbricidae	earthworms	apply ointment from rotten worms	erysipelas	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1950s, 1990s
fish	oil	apply melted	rheumatism	X		Pashkova (2018)	1950s, 1980s, 1990s, 2000s
			scratches	X		Pashkova (2018)	1950s, 1980s, 1990s, 2000s
			lanugo	X		Taroeva (1976)	

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Table 3 (continued)

English name and Latin name	Remedy/Body part	Preparation	Treated disease	KAR	RUS	Source	Decades
			burns	X		Taroeva (1976)	
		apply and massage	lanugo	X		Taroeva (1976)	
		rub	pain in legs	X		Taroeva (1976)	
		drop in ear	ear discharge	X		Taroeva (1976)	
		drink	ear discharge	X		Taroeva (1976)	
			pain in the eye	X		Taroeva (1976)	
fox	soup	eat	stomach disorders	X		Nikol'skaia and Surkhasko, 1994	
<i>Vulpes vulpes</i> Linnaeus, 1758	fat	apply	frostbite	X		Zelenin (1941); Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1940s, 1950s, 1990s
goose	fat	apply	frostbite	X		Pashkova (2018)	1950s, 1990s
<i>Anser anser</i> Linnaeus, 1758							
grasshopper	grasshopper	grasshopper bites the wart	warts	X		Pashkova (2018)	1950s, 1990s
<i>Tettigonioides</i>		apply allocated liquid	illness from stones	X		Pashkova (2018)	1950s, 1990s
			injury	X		Pashkova (2018)	1950s
hare	fur	compress	mastitis	X		Pashkova (2018)	1860s
<i>Lepus</i> Linnaeus, 1758		binding	suppuration	X		Pashkova (2018)	1940s, 1950s, 1990s
	urine	drip into ears	otitis	X		Pashkova (2018)	1950s, 1990s, 2000s
hen	egg	boil and eat	stomach upset	X		Pashkova (2018)	1950s, 1990s, 2000s
<i>Gallus gallus</i> Linnaeus, 1758							
hornet	hornet	apply mixed with salt	colic	X		Pashkova (2018)	1950s
<i>Vespa</i> Linnaeus, 1758							
horse	hair	tying	warts	X		Pashkova (2018)	1880s, 1970s, 1980s
<i>Equus ferus</i> subsp. <i>caballus</i> Linnaeus, 1758	manure	apply fresh	mastitis	X		Pashkova (2018)	1950s
			furuncles	X		Pashkova (2018)	1950s
		compress	pain in the eye	X		Pashkova (2018)	1950s
	milk	drink	tuberculosis	X		Taroeva (1976)	
	saliva	wash	wart	X		Pashkova (2018)	1960s
	urine	apply	pain in the eye	X		Pashkova (2018)	1920s
human	dirt from between the toes	smell	cough	X		Pashkova (2018)	1950s, 1970s
<i>Homo sapiens</i> subsp. <i>sapiens</i>			runny nose	X		Pashkova (2018)	1950s, 1970s
	earwax	apply	painful hangnails	X		Nikol'skaia and Surkhasko, 1994	
			diaper rash	X		Pashkova (2018)	1950s, 1960s
			intertrigo	X		Pashkova (2018)	1950s, 1960s
			attrition	X		Pashkova (2018)	1950s, 1960s
	milk	drop in ears	otitis	X		Pashkova (2018)	1920s
			scrofula		X	Loginov (1993b)	
		wash eyes	scrofula		X	Loginov (1993b)	
		apply	scrofula		X	Loginov (1993b)	
		mix with milk and rub	lanugo	X		Taroeva (1976)	
	pubic hair of mother (for a girl) or father (for a boy)	burn and drink ash in water	hernia		X	Loginov (1993b)	
	saliva	spit	illness from fire	X		Pashkova (2018)	1960s
			bleeding	X		Pashkova (2018)	1960s
			bleeding wounds		X	Tseitlin, 1912	
			cuts	X		Pashkova (2018)	1960s
					X	Loginov (2009)	
		lick	pain in the eye	X		Pashkova (2018)	1940s, 1990s
			eyewinker	X		Pashkova (2018)	1920s
		rub with cloth soaked in saliva	eyewinker	X		Pashkova (2018)	1950s
		mix with yeast, fat, and flour and rub in	lanugo	X		Pashkova (2018)	1950s
	snout	apply	burns	X		Taroeva (1976)	
	sweat	apply	cuts	X		Pashkova (2018)	1950s, 2000s
	urine	apply	skin diseases	X		Nikol'skaia and Surkhasko, 1994	
			frostbite	X		Nikol'skaia and Surkhasko, 1994	
			joint pain	X		Nikol'skaia and Surkhasko, 1994	
			dislocation	X		Taroeva (1976)	
			scrofula	X		Pashkova (2018)	1950s, 1990s, 2000s
			scratch	X		Pashkova (2018)	1950s, 1990s, 2000s
		wash	suppuration of the eyes	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	
		drop in ear	otitis	X		Pashkova (2018)	1950s, 1990s, 2000s
			scrofula	X		Pashkova (2018)	1950s, 1990s, 2000s

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Table 3 (continued)

English name and Latin name	Remedy/Body part	Preparation	Treated disease	KAR	RUS	Source	Decades
		wash	ear pain	X		Taroeva (1976)	
			convulsions in infants	X		Pashkova (2018)	1950s, 1990s, 2000s
		wrap in rags soaked in urine	scrofula	X		Pashkova (2018)	1950s, 1990s, 2000s
		bandage	cuts	X		Pashkova (2018)	1950s, 1990s, 2000s
		compress	convulsions in infants	X		Pashkova (2018)	1950s, 1990s, 2000s
			injury	X		Pashkova (2018)	1950s, 1990s, 2000s
louse <i>Pediculus humanus</i> Linnaeus, 1758	louse	pierce with needle and draw around	pityriasis	X		Pashkova (2018)	1930s, 1960s
magpie <i>Pica pica</i> Linnaeus, 1758	blood	throw away live louse	head lice	X		Pashkova (2018)	1930s, 1960s
perch <i>Perca</i> Linnaeus, 1758	milt	apply fresh	frostbite	X		Pashkova (2018)	1910s
pig <i>Sus scrofa</i> Linnaeus, 1758	fat	apply	chilblains	X		Pashkova (2018)	1950s
	nose	massage (dried)	lanugo	X		Pashkova (2018)	1950s, 1990s, 2000s
		apply (dried)	colic	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1950s, 1990s, 2000s
			hernia	X		Pashkova (2018)	1950s, 1990s, 2000s
pike <i>Esox lucius</i> Linnaeus, 1758	pike	rub fresh and recite spell	freckles	X		Pashkova (2018)	1950s, 1970s
seal <i>Phoca vitulina</i> Linnaeus, 1758	bile	drop in eye fresh	macula cornea	X		Pashkova (2018)	1950s, 2000s
	fat	apply melted	eyewinker	X		Pashkova (2018)	1950s
sheep <i>Ovis aries</i> Linnaeus, 1758	sheep	kill and put the chilblains inside	frostbite	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1950s, 1990s, 2000s
	fat	apply	cold		X	Maslov (2000)	
	manure	washing	variola	X		Pashkova (2018)	1910s
		apply mixed with fried milk	burns	X		Pashkova (2018)	1910s
	wool (black)	put in ear	otitis	X		Pashkova (2018)	1950s, 1970s
		apply	intertrigo between the toes	X		Pashkova (2018)	1950s, 1970s
			hernia	X		Pashkova (2018)	1950s, 1970s
snake Serpentes Linnaeus, 1758	leather	binding	snake bite	X		Pashkova (2018)	1950s
swan <i>Cygnus</i> Bechstein, 1803	fat	apply	frostbite	X		Zelenin (1941); Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1940s, 1990s, 2000s
wasp Vespidae	nest	tie dried	eyewinker	X		Pashkova (2018)	1960s
	propolis	apply	burn	X		Nikol'skaia and Surkhasko, 1994	
			conjunctivitis	X		Nikol'skaia and Surkhasko, 1994; Pashkova (2018)	1950s, 1990s, 2000s
yeast Ascomycota, Basidiomycota	yeast	drink in <i>vodka</i>	abortion		X	Loginov (1993b)	
	fresh blood	drink	scurvy	X		Nikol'skaia and Surkhasko, 1994	
	fresh tripe	compress	scrofula	X		Pashkova (2018)	1920s
	dry bone	rub	warts	X		Pashkova (2018)	1950s, 1980s
	fat	apply	furuncles	X		Pashkova (2018)	1950s, 1980s, 1990s, 2000s
	wool	soap and rub	lanugo	X		Pashkova (2018)	1970s
	manure	apply	eczema	X		Pashkova (2018)	1950s

Author contributions

Conceptualization: R.S.; Methodology: V.K.; Data curation: V.K., T.P., and M.M.; Writing — Original Draft Preparation: V.K. and T.P.; Writing — Review and Editing: R.S.; Visualization: V.K., T.P., and M.M.; Supervision: R.S. All authors have read and agreed to the published version of the manuscript.

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Table 4
Remedies of mineral origin.

Remedy	PubChem name	Preparation	Treated disease	KAR	RUS	Source	Decades
chalk	Calcium carbonate	rub	lanugo	X		Pashkova (2018)	1910s
		eat	stomachache	X		Pashkova (2018)	1910s
clay	Kaolin	apply to cheek	gumboil	X		Nikol' skaia and Surkhasko, 1994; Pashkova (2018)	1950s, 2000s
copper coin earth	Copper	apply	hernia	X		Pashkova (2018)	2000s
		apply	eczema		X	Maslov (2000)	
		apply boiled	frostbite	X		Zelenin (1941); Nikol' skaia and Surkhasko, 1994; Pashkova (2018)	1860s 1940s
			mastitis	X		Pashkova (2018)	1860s
		pour	wounds	X		Pashkova (2018)	1950s
gold boiled in oil	Gold	apply	scrofula	X		Pashkova (2018)	1990s 2000s
gold earrings		put into ears	scrofula	X		Taroeva (1976); Pashkova (2018)	2000s
kerosene	1-Methylbenzothiophene, 1-Prop-2-enyldibenzothiophene, 2-Allylbenzo[b]thiophene, 2-Ethylbenzo[b]thiophene, 2-Methylbenzothiophene, 3-Ethylbenzothiophene, 3-Methylbenzothiophene, 4,6-Dimethyldibenzothiophene, 4-Methylbenzothiophene, Benzo[b]thiophene, 4-ethyl-, Benzothiophene, Dibenzothiophene, Ethyldibenzothiophene, Propyldibenzothiophene	compress	toothache	X		Pashkova (2018)	1950s
		apply	cough	X		Pashkova (2018)	1950s
			suppuration	X		Pashkova (2018)	1950s
		rub in	pediculosis	X		Pashkova (2018)	1950s
			radiculitis	X		Pashkova (2018)	1950s
leach	Potash, sulfurated, Sodium carbonate	apply with sulphur and cream	scabby	X		Pashkova (2018)	1950s
		wash head	pediculosis	X		Pashkova (2018)	1860s, 1950s 1950s
mercury	Mercury (I)	rub in	pediculosis	X		Pashkova (2018)	1860s
		drop into ears	otitis	X		Pashkova (2018)	1950s
		?	fracture	X		Pashkova (2018)	1950s
salt	Sodium chloride	drink in water	“serious illness”	X		Konkka (1985)	
		dilute in water and wash with it	“forest nose”	X		Ivanova (2012)	
			evil eye	X		Pashkova (2018)	1950s
			night crying in infants	X		Pashkova (2018)	1950s
		tie to cheek	toothache	X		Pashkova (2018)	1930s, 1950s
		dissolve and rinse	sore throat	X		Pashkova (2018)	1950s
		wash in salted water in <i>banya</i>	rachitis	X		Pashkova (2018)	1950s
		apply in mixture with <i>vodka</i> , silver, and water	scrofula	X		Pashkova (2018)	1950s
		apply in mixture with sour cream and leach	scabies	X		Pashkova (2018)	1930s, 1950s
		apply in mixture with hemp seeds and cream	burns	X		Pashkova (2018)	1950s
		eat on bread	nausea, vomiting	X		Pashkova (2018)	1950s
		burned on splint and drunk in water	hernia		X	Loginov (1993b)	
		drunk with <i>kvass</i> ³¹ and oil	tapeworm		X	Tseitlin (1912)	
		rub the warts and put in the oven	warts		X	Maslov (2000)	
silver	Silver	wash in spring water with shavings	illness from forest	X		Pashkova (2018)	1920s
		mix with <i>vodka</i> , salt, water and apply	scrofula	X		Pashkova (2018)	1920s
soda	Sodium carbonate	rinse	sore throat	X		Pashkova (2018)	1950s, 2000s
		drink	heartburn	X		Pashkova (2018)	1950s, 2000s
sugar	Sucrose	pour in eyes	scrofula		X	Loginov (1993b)	

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Table 4 (continued)

Remedy	PubChem name	Preparation	Treated disease	KAR	RUS	Source	Decades
sulfuric acid	Sulfuric acid	put on teeth	toothache	X		Zelenin (1941)	
acid		apply	toothache	X		Pashkova (2018)	1950s
sulphur	Sulphur	mix with <i>Daphne</i> , tobacco and wine and apply	rachitis	X		Pashkova (2018)	1950s
		mix with mercury and apply	pediculosis	X		Pashkova (2018)	1860s, 1950s

^a Kvass (Rus. kvas) is a non-alcoholic beverage made from fermented rye bread.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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