Appetite 59 (2012) 523–530

Contents lists available at SciVerse ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Research report

The use of *teetaimed* in Estonia, 1880s–1990s ☆

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ARTICLE INFO

Article history:
Received 28 December 2011
Received in revised form 22 June 2012
Accepted 25 June 2012
Available online 4 July 2012

Keywords:
Herbal tea
Historical ethnobotany
Archival sources
Medicinal plants
Food culture
Herbal landscape
Multifunctional plants
Food plants

ABSTRACT

This research contributes to a better understanding of the criteria used for the selection of plants for making beverages. Worldwide, not only the leaves of *Camellia sinensis*, but also various other plants are used for making tea. We argue that the selection of plants for making tea (in Estonian *teetaimed*) depends on specific features possessed by or attributed to the plants. 54 plant taxa and one lichen were identified as being used for making tea, based on the analysis of Estonian historical handwritten archival records on plant use for the period from 1887 to 1994. The influence of popular literature on the use of plants for making tea was also assessed. The suitability of a plant for making tea depends on a combination of factors like multifunctional use, mild taste and attributed medicinal properties. The variety of medicinal properties attributed to *teetaimed* in folk medicine allowed herbal tea drinking to be considered as mild disease prevention. Hence, the roots of the Estonian tea tradition lie in the medicinal use of the plants, not oriental ceremonial tea drinking.

Introduction

Tea is the most consumed drink in the world, second only to water. For the modern urbanized person "tea" means a product made from the processed leaves and leaf buds of the plant *Camellia sinensis* (L.) Kuntze, infused with boiling water. Types of tea include green, white and yellow (unfermented), oolong (partially fermented) and black (fermented). Also, many commercial herbal teas, which are usually individual- or polyherbal formulations made of (medicinal) plant(s), are available worldwide. Those formulations are considered as substitutes for exclusive drinks like tea and coffee. There is growing interest in the research on the chemical composition of specific herbal teas produced commercially in different regions of the world (for example see Albayrak, Aksoy, Sağdıç, & Albayrak, in press; Desideri, Meli, Roselli, & Feduzi, 2011; Joubert, Gelderblom, Louw, & Beer, 2008).

The use of herbal teas and local plants as a substitute for tea was also historically widespread. Already in 1765, Carl Linnaeus discussed in his dissertation "Potus theae" the use of several plant species (for example *Origanum vulgare* L. and *Veronica* spp.) as substitutes for tea all over Europe (Linnaeus, 1765). In scientific research usually only a few plants for making tea are mentioned among the food plants of a specific region (for example see Khasbagan & Pei, 2000; Kindscher & Hurlburt, 1998; Kołodziejska-Degórska, 2008; Łuczaj & Szymanski, 2007; Milliken & Bridgewater, 2004; Tardío, Pascual, & Morales, 2005; Turner et al., 2011). The only exception known to the authors is the comprehensive overview dedicated to tea and coffee substitutes, covering 29 wild plants of Canada (Turner & Szczawinski, 1978).

Nevertheless, to the best knowledge of the authors, there is only one published research addressing the criteria for selection of or on the preferences for specific plants for social beverages in specific folk culture (Pardo de Santayana, Blanco, & Morales, 2005). In our ethnobotanical study we rely on historical hand-written archival records on plant use covering a period of over a century. Our working hypothesis is that there exist specific features of plants that make them suitable and desirable for making herbal teas. We also argue that drinking of herbal teas as a supplement to food intake was considered as mild disease prevention. Popular literature and different kinds of popularization of the use of surrogates in Northern Europe left minimal traces in folk botanical practices in the 19th century (Svanberg & Nelson, 1992). According to the analysed example of the introduction of Camomile into Estonian tradition, the same seems true for the almanacs and literature of the 19th century. However, in the 20th century the situation changed (Sõukand, 2007). Thus the influence of popular literature and

☆ *Acknowledgments:* The authors acknowledge the Governmental Research and Development programme "Estonian Language and Cultural Memory" (EKKM09-84) for supporting the digitalization of Estonian herbal lore. The research has been supported by ESF Grants ETF9419 and SF0030181s08. The authors thank Ingvar Svanberg for substantial comments on the manuscript and suggested references, Ulrike Plath for suggested references and Ilmar Part for language editing.

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0195-6663/$ - see front matter © 2012 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.appet.2012.06.017

newspaper articles on the use of local plants for making tea also needs to be researched.

This is our second step in a larger project analysing Estonian folkloristic data on plant use. With it, the authors seek to establish a framework for future research and collaboration in order to acknowledge the possible richness of similar as yet unused data collections.

Materials and methods

Research site

Estonia belongs to the boreo-nemoral vegetation zone, the vegetation period lasts for 185–190 days, and the frost-free period for 105–160 days. Most of the plants are collected within their very short flowering period, which leaves a relatively short time for collecting supplies. Nevertheless, the vegetation of Estonia is very diverse. The number of known indigenous plant taxa of Estonia was estimated at 1400 in the 1990s, with approximately an additional 700 species and subspecies that have migrated or escaped from cultivation (Kukk, 1999). Since the second half of the 20th century, the growth of intensive agriculture, as a result of collectivisation and urbanization, has resulted in the diminishing or even disappearance of many of local species (Kukk & Kull, 2006).

Estonia is one of the three Baltic States, situated in Northern Europe. In the past the now independent country was a part of or divided between different Empires. After the initial occupation by Germans in the 13th century, the local population was turned into serfs. In the Middle Ages the population of present-day Estonia was relatively polarized and two separate worlds existed: the one shared by the German upper class and urban culture, and the other composed of the rural, Estonian speaking, peasant population (Valk, 1999). Later on, the borderline became vaguer and the exchange of knowledge brought new plants and foods into use by the rural population of Estonia. Although serfdom was formally abandoned in 1820s, the peasants still could not move freely and only at the end of 19th century moderate migration started. Hence, traces of the separation between urban and rural population were still recognizable even at the beginning of the 20th century and resulted in two different approaches to foods and drinks.

From the middle of the 19th to the middle of the 20th century the rural population of Estonia greatly relied on the traditional management of farmland, which included also wild or semi-wild pastures where medicinal and food plants were collected. Wild plants have been popular in Estonian culture throughout all traceable history. Estonian peasants took advantage of plant diversity, utilizing approximately 500 different plants for medicinal purposes between 1888 and 1994 (Sõukand & Kalle, 2008). The plants used more often were those requiring human attention to a greater or lesser extent, securing the availability of the supplies when they were needed (Sõukand & Kalle, 2011). Along with the healing purposes, Estonians were using plants as a source for making beverages. Nowadays, many young and middle-aged people, who have not acquired their plant knowledge in the traditional way, still try to rebuild it relying on popular literature.

Definition. What are teetaimed

Although tea and coffee were known on the territory of present-day Estonia already for several centuries, for modern Estonians the term tea often means a drink made of local plants infused in boiled water. During the last century, in Estonian folk taxonomy the plants used for making tea are an independent category in the domain of (selfgathered) local plants and are called *teetaimed*. In general, *teetaimed* refers to the plants that are used for making a drink called *tee* (tea) or *rohutee* (herbal tea). The tea is usually prepared by infusing the chopped dried (or fresh, if the season allows) plants in the boiled water for some time (average 10 min). The category *teetaimed* is greatly overlapping with the category for medicinal plants (*ravimtaimed*), but the time for the preparation of medicinal drink (called *ravimtee*, but also simply *tee*) is usually longer and concentration of plant higher. The tea is used as a drink to slake ones thirst aside a meal, or in the course of social activities (feasts, parties, meetings). Additionally, the drink made of the jam of fruits and berries in hot water is also called *tee*.

Estonian *tee* is a direct loan from German *Tee* (or *Thee*), a noun referring to the beverage made from an exotic source. Drinking of tea was well established among Baltic Germans already in the 18th century, also specific tea substitutes (like strawberry, blackcurrant and cherry leaves) were well-known (Kleines. . ., 1803), and were probably collected with the help of manor serfs.

Handwritten Russian herbals from the 17th–18th centuries do not contain such a category corresponding to Estonian *teetaimed*, only medicinal, magical, household, etc. recipes (Ippolitova, 2008), indicating that such a category did not exist until the oriental tea became well-known on the territory of Russia. In the Russian Empire generally, oriental tea was mainly an urban and upper-class drink in manors and major cities, a very expensive and exclusive drink. Written records acknowledge its consumption by tsars already in the 17th century (Yoder, 2009). The list of market prices of foodstuffs, compiled in 1764 indicates that two types of tea were available in St Petersburg: Ceylonese (by price 1,462 rubles per pound) and regular tea (0,749 rubles); for comparison: one pound of butter was 0,067 rubles, 10 lb of wheat flour was 0,088 rubles (Munro, 1997). The ritual of drinking tea (in Russian *chaiepitie*) was "invented" thanks in part to four famous Russian writers Pushkin, Dostoyevsky, Tolstoy and Chekhov in the 19th century (Yoder, 2009). Oriental tea became widespread in Russia only after the Trans-Siberian Railway was constructed, which allowed a greater import of tea at the beginning of the 19th century (Smith & Christian, 1984). The peasants throughout the Russian Empire could not afford the expensive tea, no matter how much it was prized, and were drinking teas made of local species. Alternatively, some segments of the market were also selling falsifications: either re-generated oriental tea, treated with chemicals, or specific local plants (*Epilobium* spp. and in Siberia *Bergenia* spp.) that give a similar color to the infusion (Pohlebkin, 2001).

Origin and composition of the data

The authors have been working on digitalizing the Estonian folk herbal heritage since 1999, creating the Historical Estonian Herbal Medicinal Database (HERBA) (Sõukand & Kalle, 2008). As of November 2011, HERBA contained 16255 reports that were found to reflect the use of medicinal plants, including *teetaimed*. The reports were selected from folklore collections of the Estonian Folklore Archives of the Estonia Literary Museum (EFA). The data was collected between 1886 and 1994, first as responses to public calls to record folk heritage and later collected during the expeditions of folklorists to different locations in the territory of present-day Estonia (for more details on the collecting of Estonian folklore see Kalle & Sõukand, 2011a). Although EFA predominantly keeps records on folk songs, myths and beliefs, among other data some collectors also asked about the use of plants and specifically about the use of plants for making herbal tea.

For this research we extracted from HERBA all the texts indicating the use of plants for making herbal tea without medicinal indication. The selection was based on the specifications of the respondents. Such data originates mostly from two collections: 286 texts from the folklore collection of the first Estonian ethnobotanist Gustav Vilbaste (collected from 1907 to 1967) and 49

Table 1
The species potentially named in the texts where the taxa could be identified by the genera only. Species are presented in the order of the assumed use frequency.

Genera	Species potentially used
Verbascum spp.	*V. nigrum* L., *V. thapsus* L.
Trifolium spp.	*T. repens* l., *T. pratense* L., *T. montanum* L., *T. spadiceum* L.
Tilia spp.	*T. cordata* Mill, *T. platyphyllos* Scop
Primula spp.	*P. veris* L., *P. elatior* (L.) Hill
Mentha spp.	*M. aquatica* L., *M. arvensis* L., *M. xpiperita* L., *M. crispa* L.
Hypericum spp.	*H. perforatum* L., *H. maculatum* Crantz
Chamomilla spp.	*C. suaveolens* (Pursh) Rydb., *C. recutita* (L.) Rauschert

texts from the Folklore collection of the folklore department of the State Literary Museum (collected from 1945 to 1996); in addition, 24 texts on the subject were found in four other collections represented in HERBA. The texts were divided into use-reports (Tardìo & Pardo de Santayana, 2008). Altogether, 533 use-reports on the use of the *teetaimed* were identified.

The selected texts were revised for details and clarification. Although the reports did not contain dried plant samples, most of the taxa were easily identifiable either by the common names or folk phytonymes used in specific regions (for credibility of plant identification, see Łuczaj, 2010). Only 10 use-reports contained unidentifiable plant names and were therefore left out. Some taxa were identifiable on the genera level only. Still, there is always a limited number of species actually used from every specific family and some are given preference. The list of the used species was created according to the frequency of use (Table 1).

The texts were collected by 80 correspondents, who questioned altogether over 200 persons. Although the reports originating from Gustav Vilbaste's collection were gathered by pupils, the majority of them questioned their parents and grandparents. The texts from the other collections were composed by middle-aged or young people (mostly professional folklorists), but the respondents were usually over 60-years old. Although it is impossible to calculate mean age of the respondents, as not all ages are provided, the tendency seems to be that respondents were selected according to the popular perception of the most knowledgeable age (over 50 years).

To evaluate the influence of popular literature and media, the sources were searched for corresponding information and the results from the representative sample (popular books on plant use and cookbooks published until 1915, newspapers and sample magazines published until 1945) were compared with the list of traditionally used *teetaimed*. Further we conducted semi-qualitative analyses of the reports addressing our hypothesis. To test the idea of disease prevention, the relative importance (RI) of the plant in medicine was calculated, this being the percentage of the approximate number of indications for the given plant within the scope of all indications present in HERBA.

Results and discussion

The 523 use-reports reveal that among the Estonian-speaking population altogether 54 plant taxa and one lichen taxon were reported as being used for making tea during the period from 1887 to 1994. Of them, 14 taxa covered 83% of the total plant use (Fig. 1). Table 2 lists 29 *teetaimed* having at least two use-reports and includes botanical and ethnobotanical core information on these plants. The other 26 taxa, encountered only once in the texts, are: *Alchemilla vulgaris* auct. (coll.), *Angelica sylvestris* L., *Anthemis tinctoria* L., *Arctostaphylos uva-ursi* (L.) Spreng., *Berberis vulgaris* L., *Betula* sp., *Calluna vulgaris* (L.) Hull, *Capsella bursa-pastoris* (L.) Medik., *Cetraria islandica* (L.) Ach., *Quercus robur* Mill, *Daucus carota* L., *Epilobium angustifolium* L., *Filipendula ulmaria* (L.) Maxim., *F. vulgaris* Moench, *Fumaria officinalis* L., *Lamium album* L., *Lotus corniculatus* L., *Lysimachia nummularia* L., *Plantago* sp., *Prunella vulgaris* L.,

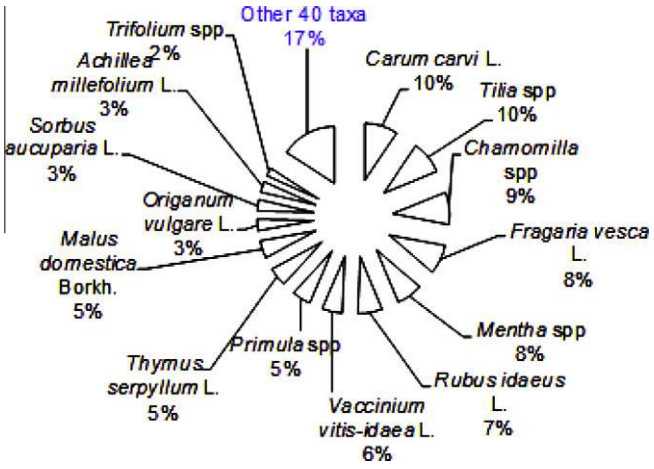

Fig. 1. Distribution of most popular *teetaimed* in Estonian traditional food culture. Percentage indicates the distribution of use-reports between species.

Prunus domestica L. subsp. insititia, *Pyrola rotundifolia* L., *Rubus chamaemorus* L., *Ribes uva-crispa* L., *Thalictrum aquilegiifolium* L., *Urtica dioica* L. Common features of all those plants are that they cost nothing except the labor spent on collecting them and they are all natural and local, qualities valued in Estonia throughout the research period.

At the end of the 19th century, the general literacy in Estonia was the highest in all of the Russian Empire, being almost 90% at the end of the 19th century (Vahtre, 2004). Until the mid-19th century secular literature was rarely published in Estonian. Thus starting from the pioneering secular journal *Lühhike õppetus* (Wilde 1766–1767), all journals, almanacs and newspapers were read by the peasants with great interest. Still, to the best of our knowledge, there were no notable popular publications in Estonian concerning the use of local plants for making tea until the middle of 19th century.

The first suggestion to use *Fragaria vesca* leaves and aerial parts of *O. vulgare* as a tea can be found in a book introducing medicinal plants (Jannau, 1857). Probably the most influential publication was an article on the use of plants for making tea, published years later by a schoolteacher and pomologist Jaan Spuhl-Rotalia in a national newspaper Olevik (Spuhl-Rotalia, 1891). It contained the descriptions of the use for tea of 15 plants growing in Estonia that have "proved features to be used as a beverage". Among them, four were never mentioned in later folklore, while five (*Tilia europea*,[1] *F. vesca*, *Rubus idaeus*, *Vaccinium vitis-idea* and *Sorbus aucuparia*) are among top-14 in our research results. Also, his guidelines contain four plants that in his opinion, and based on scientific publications, were not suitable for making beverages, as they were medicinally too powerful. Three of them (*Chamomilla*, *Primula* and *Thymus serpyllum*) are among the top-9 in our list. The use of *Tilia* flowers for medicinal purposes was rather unknown in earlier folklore and appeared only since the beginning of the 20th century.[2] Here Spuhl-

[1] The Latin name of the Tilia species provided in the article of Spuhl-Rotalia indicates a plant not native to Estonia. Other details, for example the data on chemical components and medicinal uses, demonstrate that Spuhl-Rotalia used external sources for his article. Still, at that time people were not so sensitive to Latin names of plants, as formal botanical education in Estonia was given in Russian (Paatsi, 2003) and even Estonian names were still not fixed (for more on the history of Estonian vernacular plant names see Kalle & Sõukand, 2011c).

[2] On the contrary, Łuczaj and Szymanski (2007) report that *Tilia* flower infusion was the only herbal drink used on a daily basis during the cold season until the 20th century. Later, Polish villagers in Romania reported the use of several plants (*Mentha* spp., *Primula veris*) as additives to the tea made of *Tilia* spp. (Kolodziejska-Degórska, 2008), not black tea, as do Russian Old Believers in Estonia (Kuvaitseva, 2010). This supports the idea that *Tilia* spp. was an equivalent for tea in Poland, as were many wild species in Estonia.

Table 2
The list of the traditional historical *teetaimed* used on the territory of present-day Estonia according to the frequency of mentioning. UR, use-reports; FM, First Mentioned, LM, Last Mentioned; Cult, level of cultivation: c – cultivated, sc – grows in areas greatly affected by humans, nc – does not need human involvement. RI, Relative importance in ethnomedicine – an approximate percentage of all the indications presented in HERBA covered by the given plant.

Scientific plant name	Vernacular names	UR	FM	LM	Cult	Part used for tea	Parts used in ethnomedicine	RI	Parts used for food
Carum carvi L.	*Köömen, köömned*	49	1897	1988	sc	Seeds	Seeds	20	Seeds
Tilia spp.	*Pärn, niin*	49	1922	1991	sc	Flowers	Flowers, inner bark	25	Flowers, shoot
Chamomilla spp.	*Kummel*	48	1896	1990	sc/c	Flowers, aerial parts	Flowers, aerial parts	35	
Fragaria vesca L.	*Maasikas, metsmaasikas*	43	1892	1991	nc	Flowers, leaves, fruits, aerial parts	Flowers, leaves, fruits, aerial parts	15	Fruits
Mentha spp.	*Münt, vehverments*	40	1925	1990	nc/c	Aerial parts	Aerial parts	10	Aerial parts
Rubus idaeus L.	*Vaarikas, vabarna*	36	1897	1990	nc/c	Steams, leaves, flowers, fruits	Steams, leaves, flowers, unripen fruits	10	Fruits
Vaccinium vitis-idaea L.	*Pohl, palukas, poolgas*	30	1929	1993	nc	Flowers and aerial parts	Flowers, aerial parts, fruits	15	Fruits
Primula spp.	*Nurmenukk, kanavarvas, käekaits*	28	1923	1990	nc/c	Flowers	Flowers	15	Flowers, leaves
Thymus serpyllum L.	*Liivatee, kaitus*	28	1923	1980	nc	Aerial parts	Aerial parts	20	Aerial parts
Malus domestica Borkh.	*Õunapuu*	26	1919	1989	c	Flowers, leaves, peels	Flowers, leaves, fruits	10	Fruits
Origanum vulgare L.	*Vorstirohi, pune*	17	1928	1990	nc	Aerial parts	Aerial parts	10	Aerial parts
Sorbus aucuparia L.	*Pihlakas*	17	1897	1976	sc	Flowers, fruits	Flowers, fruits, wood	30	Fruits
Achillea millefolium L.	*Raudrohi, verihein*	16	1921	1991	sc	Flowers, aerial parts	Flowers, aerial parts, leaves	45	Leaves
Trifolium spp.	*Ristik*	12	1897	1989	sc	Flowers	Flowers	5	Leaves
Valeriana officinalis L.	*Palderjan*	9	1929	1989	nc	Radix, leaves, flowers	Radix	30	
Vaccinium myrtillus L.	*Mustikas*	7	1924	1992	nc	Aerial parts, fruits, flowers, leaves	Fruits, leaves	15	Fruits
Hypericum spp.	*Naistepuna*	6	1934	1994	nc	Aerial parts	Aerial parts	20	Aerial parts
Ribes nigrum L.	*Mustad sõstrad*	5	1897	1988	c	Leaves, steams	Fruits, leaves	10	Fruits
Rosa spp.	*kibuvits*	5	1930	1988	nc/c	Flowers and fruits	Fruits	15	Fruits
Verbascum spp.	*Üheksavägine*	4	1928	1984	nc/c	Flowers	Flowers, leaves	20	
Acer platanoides L.	*Vaher*	3	1892	1963	sc	Flowers	Bark, sap, leaves, seedwings	5	Sap, shoots, flowers
Antennaria dioica (L.) Gaertn.	*Kassikäpp*	3	1919	1935	nc	Flowers	Flowers	5	
Juniperus communis L.	*Kadakas*	3	1887	1932	nc	Fruits	Branches, fruits	50	Fruits
Prunus cerasus L.	*Kirsipuu*	3	1923	1932	c	Flowers, leaves	Pitch, young shoots, branches	3	Fruits, leaves
Secale cereale L.	*Rukis*	2	1926	1960	c	Young crops, flour	Young crops, flour, grain	30	Young crops, flour, grain
Geum rivale L.	*Karukellad, ärjamürakad*	2	1942	1964	nc	Flowers	Flowers	3	Flowers
Pinus sylvestris L.	*Mänd*	2	1930	1930	nc	Young shoots	Young shoots	30	Young shoots
Prunus domestica L.	*Ploomipuu*	2	1924	1927	n	Flowers	Fruits, brances	2	Fruits
Rubus chamaemorus L.	*Murakas, sooomurakas*	2	1921	1929	nc	Leaves, flowers, fruits	Leaves, flowers, fruits	3	Fruits

Rotalia's article, as well as some later publications (see Table 3), may have influenced the uptake of the use of the flowers as well as the steams, flowers, aerial parts of *V. vitis-idea*, and *Vaccinium myrtillus* for teas, since their use as a beverage was first recorded only in the 1920s. Still, the possible influence of the article was not very even, since the use of the inadvisable four species continued. Moreover, *E. angustifolium*, strongly promoted in Spuhl-Rotalia's and some later publications and very well-known among the Russian population (and widely used as a fake tea in Russia), was mentioned only once in the 1930s and according to the name "kaporuski" is more probably introduced from Russia.

Cookbooks are presumed to be a promising source for information on local plants to use for making tea, as the first cookbook in Estonian, a translation from Swedish, was published already at the end of 18th century (Warg, 1781). Still, only 14 of 45 popular cookbooks published until 1910 discussed making oriental tea. Of them, only five sources provide the list of local plants that could be successfully used for tea-making. Three of them were written by "learned chef" Jaan Koor (Koor, 1900; Koor, 1904); the first book had four reprints, with a high circulation since 1889, but the list of the local plants appeared only in the last two editions. Later, two cookbooks are repeating the information provided in Koor's publications, but misspell the name of Chamomilla (Eesti Kokk, 1914; Väikene Keedukool, 1911).

The literature may have influenced the use of the *teetaimed* also through the introduction of the medicinal plants, especially the ones that are not native to Estonia. For example, both *Chamomilla* species have only quite recently been introduced in Estonia: *C. suaveolens* in the 18th century, naturalizing quickly and widely, and *C. recutita* only in the 19th century, which seldom grows in the wild, but is cultivated and sold in pharmacies. Although the use of chamomile for tea was already reported in 1896 (being one of the few reports of the use of chamomile generally) the peak of its use came in the second half of 20th century. As for medicinal use, the popularity of chamomile began in the 1920s and reached its peak at the very end of the 20th century (Sõukand & Kalle, 2011). The tea of chamomile is clearly of German influence in Estonia (Sõukand, 2007) and has the same origin for the rest of Northern Europe.

In general, the frequency of mentioning of local plants for making tea in popular literature and media (Table 3) does not correlate exactly with the frequency of use-reports. While most of the often-used plants are mentioned in the literature at least once, there are many very popular plants that were not even mentioned in the literature sample, like *Achillea millefolium*, *Trifolium* spp., *Hypericum* spp., *Verbascum* spp., all well-known medicinal plants. Also, the sources mentioned in Table 3 name eleven species that are not reflected in folk use; some of them are not native (like *Rubus*

Table 3
The table presents references to the journal and newspaper articles published until 1945 and the popular literature (including cookbooks) published until 1915 arguing for or forbidding the use of specific local plants for making tea. *Misspelled name.

Scientific plant name	Times cited $n = 18$	Suggests to use	Argues against the use
Fragaria vesca L.	15	Jannau (1857), Spuhl-Rotalia (1891), Spuhl-Rotalia (1897), Eesti Kokk (1914), Koor (1900, 1904), Linda (1902), Lasteleht (1906), Mida… (1942), Postimees (1927), Tallinna Teataja (1916), Taluperenaine (1935), Uus Aeg (1901), Vageström (1932) and Väikene Keedukool (1911)	
Rubus idaeus L.	13	Spuhl-Rotalia (1891, 1897), Eesti Kokk (1914), Koor (1900, 1904), Lasteleht (1906), Mida… (1942), Postimees(1927, 1943), Tallinna Teataja (1916), Taluperenaine (1935), Vageström (1932) and Väikene Keedukool (1911)	
Tilia spp.	9	Eesti Kokk (1914), Koor (1900, 1904), Lasteleht (1906), Mida… (1942), Postimees (1927), Spuhl-Rotalia (1891), Taluperenaine (1935) and Väikene Keedukool (1911) (leaves only)	Mida… (1942) (flowers only)
Malus domestica Borkh.	8	Spuhl-Rotalia (1891, 1897), Linda (1902), Lasteleht (1906), Mida… (1942), Olevik (1901), Tallinna Teataja (1916) and Vageström (1932)	
Chamomilla spp.	7	Koor (1900, 1904), Väikene Keedukool (1911)*, Eesti Kokk (1914)*, Postimees (1927) and Taluperenaine (1935) (only *C. recutita*)	Spuhl-Rotalia (1891)
Vaccinium vitis-idaea L.	5	Spuhl-Rotalia (1891, 1897), Tallinna Teataja (1916), Taluperenaine (1935) and Vageström (1932)	
Sorbus aucuparia L.	4	Mida… (1942), Spuhl-Rotalia (1891) and Tallinna Teataja (1916)	Spuhl-Rotalia (1897)
Ribes nigrum L.	4	Kauri (1942), Mida… (1942), Postimees (1943), Vageström (1932)	
Vaccinium myrtillus L.	3	Spuhl-Rotalia (1891, 1897) (leaves only) and Tallinna Teataja (1916)	
Rosa spp.	3	Spuhl-Rotalia (1891, 1897) (seeds, leaves) and Mida… (1942)	
Thymus serpyllum L.	3	Mida… (1942) and Vageström (1932)	Spuhl-Rotalia (1891)
Carum carvi L.	3	Taluperenaine (1935) and Vageström (1932)	Mida… (1942)
Epilobium angustifolium L.	2	Mida… (1942) and Spuhl-Rotalia (1891)	
Prunus cerasus L.	2	Mida… (1942) and Vageström (1932)	
Origanum vulgare L.	1	Jannau (1857)	
Calluna vulgaris (L.) Hull	1	Mida… (1942)	
Filipendula vulgaris Moench	1	Spuhl-Rotalia (1891)	
Quercus robur Mill	1	Spuhl-Rotalia (1897) (as coffee only)	
Rubus chamaemorus L.	1	Tallinna Teataja (1916)	
Berberis vulgaris L.	1	Tallinna Teataja (1916)	
Valeriana officinalis L.	1	Taluperenaine (1935) (to use for limited time only)	Taluperenaine (1935) (longer term of use)
Mentha sp.	1	Vageström (1932)	
Primula sp.	1		Spuhl-Rotalia (1891)

fruticosus L.), some unknown as medicinal or food plants (like *Galium odoratum* (L.) Scop.), some well-known, but difficult to collect (like the tiny *leaves of Oxycoccus palustris* Pers.). Still, some of them are well-known and easily gathered plants (like *Rubus caesius* L.). When literature introduces the use of new species, the introduction has to fall on fertile ground in order for people to accept the teaching. That probably meant that people ventured to try the plants that were already within their reach. Also, they were not eager to abandon already familiar and trusted plants, regardless of the attempts of the media to explain their side effects. Thus the role of the literature here seems to be mostly supportive, helping to establish the species already in use.

Through history there were also other different means through which use of local plants for making tea could be introduced. The high popularity of *Carum carvi* – used in Sweden for making tea already in the mid-18th century (Svanberg, 2011) – was probably achieved through the obligation of the peasants to collect a specific amount of it for some landlords as a food additive and medicine (Kalle & Sõukand, 2011b). In manors and in urban areas appropriate literature was available in German and Russian much earlier than the first publications in Estonian. In order to be understood by the peasants, those books had to be mediated, first by manor owners' wives, vicars and Estophiles until the mid-19th century, and later through the teachings of the educated Estonians in the Age of Awakening (the second part of the 19th century). In the first half of the 20th century several courses that included the subject of cooking were also organized by different organizations for housewives and farmers. But each particular event rather had a very local outcome, which is difficult to detect with the available data.

Selective acceptance of proposed *teetaimed* is a strong argument for the small influence of external sources. Moreover, not all native species known as plants used for making tea elsewhere were used as such in Estonia. Some species, like *O. vulgare*, mentioned already by Linneaus, *T. serpyllum*, known as a tea substitute throughout Scandinavia (Eriksson, 1998) and on the Faroes already in the 18th century (Svanberg, 1998), *Mentha* spp., used widely (Turner et al., 2011), *C. carvi*, used in polish villages of Romania (Kołodziejska-Degórska, 2008), etc., are among the most commonly used plants for making tea. Nevertheless, there are some species, well-known elsewhere, like *Rhododendron tomentosum* Harmaja (syn *Ledum palustre* L.), used by North American Indians (Turner et al., 2011) and *Veronica* spp., used in Europe (Linnaeus, 1765), for which there are no records of their use by Estonians in the given period, although they are readily available. Discussing further the example of those two taxa, we find that neither of them is an important food nor medicinal plant, although used sporadically in a few places as medicine: *Veronica* spp. for skin diseases (Sõukand & Kalle, 2008) and *R. tomentosum* predominantly against parasites (Sõukand, Kalle, & Svanberg, 2010).

It seems that all plants used for making tea in Estonia are used as medicinal plants and the majority as food plants as well. Within

every society there are plants used for diverse purposes, with food and medicinal uses overlapping (Britta, Thi Duyet Ho, Nghia, Dung, & Nhut, 2003; Kołodziejska-Degórska, 2008; Pardo de Santayana et al., 2005; Redžic, 2006; Łuczaj & Szymanski, 2007). Moreover, Milliken and Bridgewater (2004) mention several plants used as tea substitutes for their attributed medicinal effect. The multifunctional nature of those plants seems to be one of the most important criteria that allows the basis for the selection of *teetaimed* to be discussed. A multifunctional plant is more likely to be known by a community and is present in the home in a form usable for the preparation of tea (dried plants), and is thus used at the appropriate moment. The texts reveal that Estonians preferred herbal teas made of just one component, with only a few individual exceptions. Despite that, quite a large number of respondents reported the use of several *teetaimed* (Fig. 2), diversifying the teas available in their household during the course of the year and avoiding the unilateral use of plants.

Mainly the same (or some) parts of the plants were used for making tea as were used for medicinal preparations, but generally not the same parts as were used for food. Although most of the herbal teas were prepared from dried plants soaked in fresh boiled water, since the 20th century sometimes the jam of berries was used instead as a source of tea.

Use of plants that are already known for their medicinal or food properties guide us to the next important criterion – the availability of the plant. Most of the tea ingredients were collected from the areas surrounding human settlements, affected by humans (hay meadows, home-yards, planted trees) and thus dependent on human activity. The category of *teetaimed* referred to the plants collected in the wild, although since the 1920s it also includes the plants collected from one's home garden. Nevertheless, Estonians still used a considerable amount of wild plants compared to Russian Old Believers living in Estonia (Table 4). Still, in all cases, the cultivation or semi-cultivation of the plants is for purposes other than getting material for tea and the tea-plants are gathered as a side product of other activities; thus, the idea of herbal landscape (Sõukand & Kalle, 2010a; Sõukand & Kalle, 2010b) functions for *teetaimed* as well.

Taste is the next criterion for the selection of the *teetaimed*, as already shown for food plants (Ghirardini et al., 2007; Nebel, Pieroni, & Heinrich, 2006). The sense of taste is very personal; the taste depends greatly on the concentration and the mode of preparation. All of the most-used plants have a specific taste that is culturally considered rather pleasant. Whereas medicine, preferably, could be bitter or even distasteful, social beverages had to have a pleasant taste and had to be attractive not only to the tea-maker, but to all the potential drinkers. That explains the prevalence of taxa with a rather mild taste among the top 10 most-used *teetaimed*.

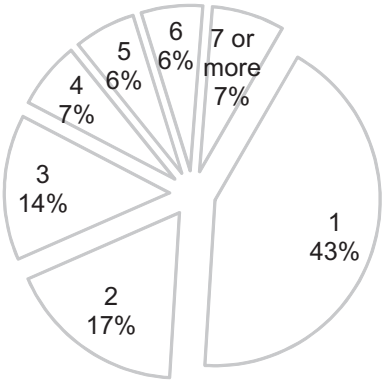

Fig. 2. Percentages of respondents naming the specified numbers of plants.

Table 4
Use of plants for making tea among Russian Old Believers in Estonia (based on Kuvaitseva, 2010). The book contains interview extracts grouped under different subjects. The tea subject covers 17 respondents (born 1921–1954), of which 11 mentioned the use of natural plants from one to five species per interview extract. Notably only two of the respondents claimed the use of local plants instead of oriental tea in times of need, while three were adding them to black tea for better taste and four were using local plants preferably; in the two remaining interview extracts, the information on this attitude was absent.

Scientific plant name	UR, $n = 11$
Ribes nigrum L.	7
Malus domestica Borkh.	5
Mentha spp.	5
Rubus idaeus L.	5
Fragaria vesca L.	2
Chamomilla spp.	1
Prunus cerasus L.	1
Prunus domestica L. subsp. insititia	1
Thymus serpyllum L.	1
Tilia sp.	1
Melissa sp.	1

At first glance the relative importance of the plant in ethnomedicine seems to have little influence on its selection for herbal teas. Moreover, plants with higher relative importance are much less used that those with a smaller relative importance. A closer look at the plants with a higher relative importance at the end of the list in Table 2 reveals that this is combined with either intense taste (*A. millefolium*, *Pinus sylvestris*), prevalence of the use of other plant-parts or different modes of preparation for medicinal purposes (*S. aucuparia*, *Secale cereale*), or a combination of two or more features (*Juniperus communis*, *Valeriana officinalis*). Nevertheless, the relative importance is rather high for the majority of the most-used *teetaimed*, which indicates the wide diversity of their medicinal use.

There are many reports that indicate the use of the same plants for tea and for medicinal purposes simultaneously. Many texts argue that if the plant is good for medicinal purposes, then it is good for making tea too. The prevalence of the medicinal plants with diverse applications at the top of the list of *teetaimed* is remarkable and allows us to assume that the teas were actually used as (unintentional) disease prevention. Some respondents report drinking tea with the medicinal properties of the plant in mind, but even if this choice was not deliberate, the spectrum of the health problems ascribed for treatment in Estonian folk medicine by the most-used *teetaimed* is wide and mild, covering in folk use mainly stomach problems (*C. carvi*, *Chamomilla*, *O. vulgare*, *V. myrtillus*) (cf Pardo de Santayana et al., 2005). Still, ohter plants with ohter folk-medicinal uses are also important, as ones used to cure cold (*Tilia*, *R. idaeus*, *T. serpyllum*, *Hypericum*, *A. millefolium*, *Ribes nigrum*, *Rosa*), sleep problems (*Mentha*, *V. officinalis*), and a later invention – the need for the vitamins (*F. vesca*, *Primula*, *S. aucuparia*, *R. nigrum*).

Still, some respondents strictly differentiate the medicinal use and the use for tea. For example, a record received in 1978 from Väike Maarja parish identified an un-specific medicinal application for one plant, whereas lists several others as a source for tea only: "In olden times the tea of primula was for healing, this was not meant for feasts. The sources for the tea were rowan tree fruits, cowberry, wild strawberry and raspberry, chamomile and caraway".

The question still remains, whether the Estonian-speaking population used plants already familiar from their medicinal use with the intention to substitute for the drink that was poorly familiar to them. In Northern Europe wild plants seem to be regarded as a substitute for the "real" thing and not very willingly accepted by

the population (Svanberg & Nelson, 1992). There is no data from the period preceding the spread of tea in the Russian Empire, so the comparative analysis regarding tea-drinking tradition cannot be done. Still, indirect conclusions can be made.

Itinerant peddlers were quite common in the rural area in the 19th century, supplying among other goods oriental tea or its surrogates. Other contacts with the upper class might also have introduced oriental tea to the peasants. Still, there seems to be no substantial need for substitution. At the beginning of the 20th century, when oriental tea became widely available in the Russian Empire, many newspaper articles provide guidelines for making delicious teas from local plants, not as substitutes, but as different, much tastier options for a drink (see also Table 3). The newspapers promoted herbal teas "already loved in St Petersburg" for their great taste (Linda, 1902) or teas made of fruits and berries, emphasizing their great medicinal properties (Tallinna Teataja, 1916). One article, targeted to children, argues against the use of Chinese tea due to its poisonous content and suggests children gather themselves several local plants while herding and teaches them how to dry and store the gathered plants (Lasteleht, 1906). The myth of the harmfulness of Chinese tea, along with coffee and tobacco, was rather widespread in that period (Lass, 1916; Taluperenaine, 1935; Tamm, 1928; Vageström, 1932).

Nevertheless, in the 1920s a drink made from the leaves of *C. sinensis* became widely used among the wealthier Estonian-speaking population. With the rise of economic nationalism in the 1930s, propaganda was launched against all imported goods, including imported tea. One newspaper column argues that there is no reason to spend 29 mil Estonian Marks[3] per year for purchasing Chinese tea (Postimees, 1927). Confessedly, the first local tea industry, specializing on making tea from local resources was established in 1932 by a person who claimed to have experience with making herbal teas since 1918; produced were 6 different categories of teas (Päevaleht, 1932). In 2 years the industry became very popular, with locally sourced herbal tea being the only beverage served in the army and in hospitals. In the newsman's opinion this greatly reduced the amount of nationally consumed coffee (Päevaleht, 1934). Again, the imported tea was deemed unhealthy, stressing the negative influence of *teiin* on one's health and "good old local plants" were once again re-introduced to the population through the widespread women's journals (Taluperenaine, 1935; Vageström, 1932). WW II intensified the propaganda for the use of native plants as tea components and an official guidebook for the collection of *teetaimed* was issued, continuing the idea of economic nationalism (Mida. . ., 1942). The brochure contained chapters on 14 plants with exact description of their habitat and the modes of preservation. The anonymous team of authors indicates that they did not include in the list well-known but untested plants and those plants that have severe health effects. Dried plants were widely purchased from the population and special rewards, additionally to money, were promised for suppliers (Postimees, 1943).

Estonians peasants never adopted the Russian *samovar*, nor did they take the drinking of tea as a kind of ritual, as it was for Russians and Germans. In the 20th century it was just a regular drink accompanying food, instead of milk, beer or tree sap; as an optional or unavoidable choice, depending on the circumstances. Reports on peasants drinking herbal teas are found among the responses to the first calls to collect Estonian folklore. Peasants probably got the idea to use a lean infusion of medicinal plants as an everyday drink, but there is no proof that such a practice did not exist earlier. There was an alternative name for plant infusion in earlier folklore, *leem*, which in the modern language is sometimes used to denote the liquid part of soup. Even so, they did not use herbal teas as a substitute for the "real" thing, as this "real" did not have much chance to entirely root until quite recent times. Moreover, only few of the texts even mention oriental tea, of them one text from 1980s reports that in "old times" people could not afford to buy teas from the shop, but used self-collected plants, stressing that local plants are better for your health. Seems that the single linkage to oriental tea is the name, and such a take-over won't be the first time in human or Estonian history. The name of the plant not growing in Estonia, *arnica*, attributed to local plants with similar applications is a good illustration of the same principle (Sõukand & Raal, 2008). The roots of the Estonian tea tradition lie in the medicinal use of the plants, not oriental ceremonial tea drinking, which also explains the wide diversity of the used taxa, compared to Russian Old Believers in Estonia (Table 4).

[3] One Estonian Mark in 1927 was an equivalent to 0,004 g of gold. Thus 29 mil Estonian Marks in 1927 corresponds to approximately 5 mil EUR in March 2012.

Conclusions

The habit of collecting and using wild and semi-wild plants for making social beverages was rather well established in Estonia, allowing for generalization and testing of the hypothesis addressed. This research contributes to the better understanding of the criteria for selection of specific plants for making social beverages. The study demonstrated that the selection of *teetaimed* depends greatly on several factors, such as multifunctional use of the plant, its availability, taste and smell, as well as the variety of medicinal uses. Popular literature was definitely supporting the already existing habits of the use of plants for making tea, but was also adding few new ones. Most probably, the popularity of the *teetaimed* is achieved by a combination of all the specific features the plant possesses, as well as external influences. Still, the most important factors affecting the popularity of specific taxa were: multifunctional use, mild taste and mild attributed medicinal properties. In the research period, herbal tea was used rather despite, not instead of oriental tea, which stresses the importance of local flora in the diet of Estonians.

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