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RWB, NYPZ, SS, ZK, DK, DT, and KB designed the study; RWB, NYPZ, SS, ZK, DT, and KB conducted the fieldwork; RHE conducted the main statistical analysis; RBU, NYPZ, and RHE analyzed the data and wrote the manuscript; all authors read, corrected, and approved the manuscript

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**Competing interests**

No competing interests have been declared.

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## ORIGINAL RESEARCH PAPER

# Plant and fungal use in Tusheti, Khevsureti, and Pshavi, Sakartvelo (Republic of Georgia), Caucasus

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**Abstract**

In this study, we documented traditional plant use in Tusheti, Khevsureti, and Pshavi and hypothesized that (i) plant use knowledge in general would be higher in isolated high elevation communities, and that (ii) use of home gardens would be much more restricted to lower elevation settings. Fieldwork was conducted in Khevsureti, Pshavi, and Tusheti. Interviews using semi-structured questionnaires were conducted with 74 participants. In the present study, we encountered 317 plant species belonging to 203 genera of 80 families being used in the research region. Of these, 197 species were exclusively wild-harvested, 73 were grown in homegardens, and 47 were both grown in gardens and sourced in the wild. The ordinations in plant-space and in use-space were significantly fit by elevation of informant community, and community itself. Age and gender did not significantly fit the distribution of informants across either plant-space or use-space, respectively. Number of use-reports was highest across all communities in the food and medicinal use-categories, and informant consensus. Species with especially high use-diversity (UD) tended to be woody species although. Species with high use-value (UV) were mostly managed/domesticated species from home orchards, gardens, or farms. Plant species, and uses, found in our study, showed clear relations to the wider Eurasian cultural complex. The species number found was, however, far higher than in any published study from either the region or the wider Mediterranean and Eurasia. The maintenance of home gardens in Georgia serves as socio-ecological memory. While the great variety of plant species used in the Georgian Caucasus might provide a reservoir for food security climate change is starting to affect both natural floristic diversity and gardens both in the Caucasus as well as continent wide.

**Keywords**

ethnobotany; Georgia; Caucasus; homegardens; traditional knowledge

**Introduction**

Pshav–Khevsureti and Tusheti (Fig. 1) are located on slopes of the main Caucasus range, with elevations from 1250 to 4493 meters. The climate is generally cool with a median yearly temperature of about 5°C. The hottest month is July with mean temperatures between 13–15°C. The region lies in the drier part of the Caucasus and receives only about 450–900 mm of annual rainfall, which especially at higher altitudes falls



Fig. 1 Study area (based on United Nations, modified).

mostly as snow. Dagestan borders Tusheti in the east, while Chechnya and Ingushetia border the region in the north, and the Georgian province of Kaheti borders it in the south. The highest peaks in this part of the Caucasus are Tebulo (4492 m), Komito (4261 m), Dano (4174 m), and Diklosmta (4285 m). Tusheti harbors a wide variety of ecozones, and its very high biodiversity [1,2].

Pshav–Khevsureti and Tusheti are known for Late Bronze and Early Iron Age settlements, starting in the third century BC. Earliest written accounts go back to Ptolemaeus [1].

The population of the region consists of Khevsur, Pshav, and Tush ethnic groups, the latter divided into Tsova Tushs and Chaghma Tushs, which are however ethnographically almost identical. Linguistically, the Chaghma Tushs speak a dialect close to Khevsurian, Mokhebian, and Pshavian, which all belong to the Pkhovian group of Georgian dialects. The Tsova Tushs speak a distinct language – Tsova Tushetian / Batsbian in their homes, and a Georgian dialect similar to Kahetian in more official settings [1,3].

In this study, we documented traditional plant use in Tusheti, Pshavi, and Khevsureti, also elucidating culturally important species, and hypothesized that (i) plant use knowledge in general would be higher in isolated high elevation communities, and that (ii) use of home gardens would be much more restricted to lower elevation settings.

## Material and methods

### Ethnobotanical interviews

Fieldwork was conducted in Khevsureti, Khevi, and Tusheti in July–August 2013, July–August 2014, and September–October 2015. Interviews using semi-structured

questionnaires were conducted with 74 participants (31 women and 43 men) after obtaining their oral prior informed consent. The participants were selected by snow-ball sampling, trying to reach gender balance and represent members of different age (30–80 years). However, most participants were over 50 years old, because only very few younger people remain in remote Georgian villages. All interviews were carried out in the participants' homes and gardens by native speakers in Georgian and its local dialects (Tush, Khevsur, Psav), and then translated into English. In contrast to many other countries, Georgia counts on a complete flora [4–6], and a broad inventory of vernacular names in all local Georgian dialects [7]. Forest (= includes all non-garden areas) and garden (= area where species are cultivated) species were identified directly in the field, using available literature [4–6], and collected and deposited in the National Herbarium of Georgia (TB). The nomenclature of all species follows <http://www.tropicos.org>, under APG III [8]; the nomenclature of fungi follows MycoBank (<http://www.mycobank.org>).

### Statistical analysis

**Distance among informants – plants and uses.** Distance among informants was calculated using non-metric multi-dimensional scaling on two distance matrices: one in which columns represented plant species reported, and one in which columns represented uses reported. The resulting ordinations plot individuals who report similar plants or similar uses more closely together. We then fit different environmental vectors (community, elevation) and factors (gender, community) to test how a characteristic explains the location of informants in the ordination. We compared these fits to 999 randomized shuffles of the environmental variables to calculate significance.

**Informant consensus.** Informant consensus (IFC) for a given use-category (UC) was calculated as the number of use-reports (UR) (the use of one species for a specific purpose) minus the number of taxa (t) over the number of use-reports minus one:  $N_{UR} - N_t / N_{UR} - 1$

**Plant relative importance.** Species were ranked by three metrics: (i) cultural importance value (CI), the sum within species across all plant-uses of the number of informants reporting a plant-use divided by the number of informants reporting the plant; (ii) use-diversity (UD), the Shannon index of uses (calculated with the R package “vegan”, [9]); and (iii) use-value (UV), the number of reports of a species over total number of informants asked in a region [10].

### Results

In the present study, we encountered 317 plant species belonging to 203 genera of 80 families being used in the study area (Tab. 1). Of these, 197 species were exclusively wild-harvested, 73 were grown in homegardens, and 47 were both grown in gardens and sourced in the wild.

Among areas within the study area, plants and their uses showed only partial overlap in the region, with a wider divergence in uses (Fig. 2). Between the two major areas, Khevsureti and Tusheti, the bulk of unique uses were reported from the generally higher elevation communities within the Tusheti area.

The ordinations in plant-space (Fig. 3a) and in use-space (Fig. 3c) were significantly fit by elevation of informant community [plant-space (Fig. 3b),  $r^2 = 0.376$ ,  $p = 0.001$ ; use-space (Fig. 3d),  $r^2 = 0.185$ ,  $p = 0.012$ ). Community was also significant in the ordination for both plant-space ( $r^2 = 0.687$ ,  $p = 0.001$ ) and use-space ( $r^2 = 0.488$ ,  $p = 0.029$ ). Age and gender did not significantly fit the distribution of informants across either plant-space ( $p = 0.068$  and  $p = 0.489$ , respectively) or use-space ( $p = 0.123$  and  $p = 0.546$ , respectively).

**Tab. 1** Species used in Tusheti–Khevsureti (forest = includes all non garden areas; garden = area where species are cultivated; Tush. = Tushetian; Khev. = Khevsurian; Phsh. = Phshavian).

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<b>Actinidiaceae</b>							
<i>Actinidia callosa</i> Lindl.	10	Food (human food)	კივი (Kiwi)			Fruit	Garden
<b>Adoxaceae</b>							
<i>Lonicera caucasica</i> Pall.	188	Food (human food), medicinal (heartburn), utensils and tools (arrows)	წერწა (Tserts'a)	ჭიჭკობი (Chich'kot'i Tush.)		Branches, fruit, leaf	Forest
<i>Sambucus ebulus</i> L.	276	Food (alcohol, human food), medicinal (intestines, khinkali)	ანწლი (Ants'li), ანწლი (Ants'li)			Fruit, leaf	Forest
<i>Viburnum lantana</i> L.	324	Cultural (necklace, pickled, protection, walking sticks), food (human food), medicinal (hypertension), utensils and tools (walking sticks)	უზანი (Uzani)	(T'sirchua Khev.), ალაუდა (Aluda Khev.), თურსა (Tursa Tush.), ურალუზანი (Urdzani Khev.)		Fruit, leaf, stem	Forest, garden
<i>Viburnum opulus</i> L.	325	Cultural (protection), food (alcohol, human food, tea), medicinal (blood pressure, cough, lungs), utensils and tools (walking sticks)	უზანი (Uzani), ძახელი (Dzaxhveli)	ალაუდა (Aluda Khev.)		Bark, branches, fruit, stem	Forest
<b>Agaricaceae</b>							
<i>Agaricus arvensis</i> Schaef.	12	Food (human food)	კამა (Kama)			Fruiting body	Forest
<i>Bovista</i> sp.	51	Food (human food)	ყვავთკუსა (Q'vavtkusa)			Fruiting body	Forest
<i>Bovista</i> sp.	52	Food (human food)	გუდაფშუტა (Gudapshut'a)			Fruiting body	Forest
<i>Lycoperdon</i> sp.	191	Food (human food)	გუდაფშუტა (Gudapshut'a)			Fruiting body	Forest
<i>Calvatia gigantea</i> (Batsch) Rostk.	86	Food (human food)	ფურფაშა (Purpasha), ცვარვიო (Tsvario)			Fruiting body	Forest

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Coprinus comatus</i> (O. F. Müll.) Pers.	89	Food (human food)	მერტხალა Mertskhala			Fruiting body	Forest
<i>Lycoperdon perlatum</i> Pers.	189	Food (human food), medicinal (bleeding, wounds)	მალათუ (Malathu)			Fruiting body, Spores	Forest
<i>Lycoperdon pyriforme</i> Schaeff.	190	Food (human food), medicinal (bleeding, wounds)	მალათუ (Malathu)			Fruiting body, Spores	Forest
<i>Macrolepiota</i> sp.	194	Food (human food)	წერეწო (Tserets'o)			Fruiting body	Forest
Amanitaceae							
<i>Amanita muscaria</i> (L.) Lam.	22	Food (human food)	წითელი მხამასოკო (Tsiteli shkhamasoko)			Fruiting body	Forest
Amaranthaceae							
<i>Amaranthus paniculatus</i> L.	23	Food (phkhali)	წითელი მხალი (Ts'iteli Phkhali), წითელი ჯიჯლასა (Ts'iteli jijaq'a)			Leaf	Forest
<i>Amaranthus retroflexus</i> L.	24	Food (human food, phkhali)	ჯიჯლასა (jijaq'a)			Leaf, stem	Forest, garden
<i>Atriplex hortensis</i> L.	39	Food (human food)	წითელი მხალი (Ts'iteli Phkhali)	თათამო (Tatabo Tush.)		Leaf	Forest
<i>Beta vulgaris</i> L.	42	Food (human food, phkhali)	ჭარხალი (Ch'arkhali)	(Kholhnuta Khev.)		Leaf, root	Garden
<i>Beta vulgaris</i> L. ssp. <i>cicla</i> (L.) Moq.	43	Food (human food)	მანგოლდი (Mangoldi), ფოთლოვანი ჭარხალი (Phothlovani charkhali), წითელი მხალი (Tsitheli Phkhali)			Leaf	Garden

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Chenopodium album</i> L.	78	Food (human food, phkhali, pickled)	ხახვი (Martsq'vi), ნაცარქათამა (Natsarqathama)	ნაცარქათამა (Nat-zarchatari Khev.), ქათანაცარა (Qathanatsara Svan.)		Leaf, stem	Forest, garden
<i>Chenopodium foliosum</i> (Moench) Asch.	79	Food (human food, phkhali), utensils and tools (dye)	მათუთა (Matuta)	ძაღლოთუღლა (Dzaghlzholia Tush.)		Leaf, seed, stem, whole plant	Forest
<i>Chenopodium</i> sp.	80	Food (pickled)		ნაცარქათამა (Tsatsar-katama Khev.)		Stem	Forest
<i>Spinaca oleracea</i> L.	294	Food (human food)	იხპანახი (Isp'anakhi)			Leaf	Garden
Amaryllidaceae							
<i>Allium cepa</i> L.	14	Food (human food)	ხახვი (Khakhvi), ხახვი (Martsq'vi)			Bulb	Garden
<i>Allium fistulosum</i> L.	15	Food (human food)	ჭლასკვი (Ch'lakvi), ჭლასკვი (Martsq'vi)	პრასა-ხახვი (Prasa-khakhvi)		Bulb	Garden
<i>Allium kunthianum</i> Vved.	16	Food (human food)	კლდის ხახვი (K'ldis khakhvi)	კლდისნიორა (K'ldisniora)		Leaf	Forest
<i>Allium porrum</i> L.	17	Food (human food)	პრასი (Prasi)	იმერული პრასი (Im-eruli p'راسi)		Bulb	Garden
<i>Allium sativum</i> L.	18	Food (human food)	ნიორი (Martsq'vi), ნიორი (Niori)			Bulb	Garden
<i>Allium ursinum</i> L.	19	Food (phkhali)	მთის ლანძილი (Mtis ghandzili)			Leaf	Forest
<i>Allium victorialis</i> L.	20	Food (chachapuri, human food, khinkali, phkhali, pickled)	ლანძილი (Ghanzili)	შებუ (Shebu Khev.), შებუ (Shebu Tush.), შიშვილი (Shishgil Svan.)		Leaf, stem	Forest
Anacardiaceae							
<i>Pistacia mutica</i> Fisch. & C.A. Mey.	217	Utensils and tools (dye)	კევის ხე, საღსაგაჟი (Kevis khe, Saghsaghaji)			Leaf	Forest

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
Apiaceae							
<i>Aethusa cynapium</i> L.	11	Food (human food), medicinal (gums)	მარიამძმარა (mariamdzmara)			Leaf	Forest
<i>Agryllis latifolia</i> (Bieb.) Boiss.	13	Food (chachapuri, chavre, human food, phkhali, pickled), medicinal (anthelmintic, asthma)	დუტსი (Dutsi), დუტსი (Dutsi)	ლაგვი (Lagi Khev.)		Bark, leaf, petiole, stem	Forest
<i>Anethum graveolens</i> L.	25	Food (human food)	კამა (Kama), კამა (Martsq'vi)			Leaf, seed, whole plant	Garden
<i>Angelica tatianae</i> Bordz.	26	Food (human food, pickled)	ანგელოზა (Angeloza)			Stem	Forest
<i>Anthriscus nemorosus</i> (M. Bieb.) Spreng.	27	Food (human food, pickled), poison (toxic)	ლიმი (Limi), მათუთი (Matuti)	ლიმი (Limi Svan.)		Fruit, leaf, stem, whole plant	Forest, garden
<i>Apium graveolens</i> L.	28	Food (human food)	ნიახური (Niakhuri)			Leaf, root, stem	Garden
<i>Astrantia maxima</i> Pall.	38	Cultural (decoration)	უკვდავა (Ukvdava)			Whole plant	Forest
<i>Carum carvi</i> L.	71	Food (chavre, khinkali, pickled, spice), medicinal (diarrhea, heartburn)	წყალთქონდარი or კვლიავი (Tsqaltkondara or K'vliavi), კვლიავი (K'vliavi), ძირა (Zira)	წყლის კონდარი (Tsq'lis kondari Tush.)		Seed	Forest, garden
<i>Chaerophyllum aureum</i> L.	73	Food (pickled)		ჭიმი (Chimi Tush.)		Stem	Forest
<i>Chaerophyllum bulbosum</i> L.	74	Food (pickled)		ჭიმი (Chimi Tush.)		Stem	Forest
<i>Chaerophyllum caucasicum</i> Schischk.	75	Food (chachapuri, human food, khinkali, phkhali, pickled, sats'ebai)	ლიმი (Chimi)	წყალთქონდარი (Tsipkhala Khev.), ჭიმი (Ch'imi Tush.)		Fruit, leaf, root, stem	Forest, garden
<i>Conium maculatum</i> L.	87	Food (human food, pickled)	მათუთი (Matuti), მათუთი (Matuti)			Leaf, stem	Forest
<i>Coriandrum sativum</i> L.	90	Food (human food)	ქინძი (Kindzi)			Leaf, seed	Garden

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Daucus carota</i> L.	109	Food (human food)	შუშანა (Shushana)			Root	Forest
<i>Daucus carota</i> L. ssp. <i>sativus</i>	110	Food (human food)	სტაპილო (Stapilo)			Leaf, root	Garden
<i>Falcaria sioides</i> Asch.	116	Food (pickled)	კოფრჩხილა (K'oprchkhila)			Stem	Forest
<i>Foeniculum vulgare</i> Mill.	119	Food (human food)	ცერეტო (Tseretso)			Bulb, stem	Garden
<i>Heracleum alpinum</i> L.	147	Medicinal (haemorrhoids)	დიკი (Diqi)			Leaf, seed, stem	Forest
<i>Heracleum asperum</i> M. Bieb.	148	Food (human food, satsèbai), medicinal (toothache)	შუპყაი (Shupq'a)			Leaf, root, stem	Forest
<i>Heracleum leskovii</i> Grossh.	149	Food (pickled)	შუპყაი (Shupq'a)			Stem	Forest
<i>Heracleum</i> sect. <i>Villosa</i> sp.	150	Food (pickled)	თეთრი დიკი (Tetri diq'i)	ლაგი (Lagi)		Stem	Forest
<i>Heracleum sostnowskyi</i> Manden	151	Food (chave, human food, phkhali, pickled, satsèbai)	დიკი (Diq'i), დიკი (Diq'i)			Leaf, seed, stem	Forest, garden
<i>Hippomarathrum microcarpum</i> Petrov.	153	Food (pickled)	კარკვეტა (Karkveta)			Stem	Forest
<i>Levisticum officinale</i> W. D. J. Koch	183	Food (human food)	ცისკარა (Tsiskara)			Leaf	Garden
<i>Libanotis transcaucasica</i> Schischk.	184	Food (chave, human food, phkhali, pickled, satsèbai)	სასუკა (Sasuka)			Leaf, stem	Forest
<i>Ligusticum alatum</i> Spreng.	185	Food (human food, satsèbai)	მარამა (Mariamdzmara)			Leaf	Forest
<i>Petroselinum crispum</i> (Mill.) Fuss.	209	Food (human food, tea)	ოხრახუში (Martsq'vi), ოხრახუში (Okhrakhushi)			Leaf, seed, whole plant	Garden
Araceae							
<i>Arum orientale</i> M. Bieb.	36	Medicinal (cancer)	დათჰეკა (Datphekha)			Leaf	Forest



Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
Asteraceae							
<i>Achillea grandiflora</i> M. Bieb.	5	Food (human food)	ჯორთკუდა (Jortk'uda)	მელაკუდა (Melakuda Tush.)		Leaf	Forest
<i>Achillea micrantha</i> M. Bieb.	6	Medicinal (wounds)	ფარსმანდუკი (Parsmanduk'i)	მელაკუდა (Melik'uda Tush.), მელიკუდა (Melik'uda Tush.), მელიკუდა (Melik'uda Tush.), წყლოულის ბალახი (Tsq'ulis balakhi Tush.), წყლოულის ბალახი (Tsq'ulis balakhi Tush.)		Leaf, whole plant	Forest
<i>Achillea millefolium</i> L.	7	Food (tea), medicinal (anti-inflammatory, cholagogic, diuretic, kidneys, liver, panacea, sore throat, stomach, ulcers, wounds), utensils and tools (dye)	ფარსმანდუკი (Parsmanduk'i)			Flower, leaf, whole plant	Forest, garden
<i>Achillea nobilis</i> L.	8	Medicinal (rheumatism, wounds)	ტილიჭირი (T'lich'iri), ფარსმანდუკი (Parsmanduk'i)	მელაკუდა (Melik'uda Tush.)		Leaf, root, whole plant	Forest
<i>Achillea ptarmicifolia</i> (Willd.) Rupr. ex Heimerl	9	Medicinal (wounds)	ველური ტარხუნა (Veluri tarkhuna)			Leaf	Forest
<i>Arctium lappa</i> L.	29	Food (human food, phkhali, pickled)	ძირხვენა (Dzirxvena)			Leaf, root, stem	Forest
<i>Artemisia absinthium</i> L.	32	Food (human food, tea), medicinal (bedwetting in children, cold, flu, sore throat), veterinary (fever)	აბზინდა (Abzinda), გიეში (Gieshi)	გიეში (Giera Tush.)		Leaf, whole plant	Forest, garden
<i>Artemisia dracunculus</i> L.	33	Food (human food)	ტარხუნა (T'arkhuna)			Leaf	Garden
<i>Artemisia</i> sp.	34	Utensils and tools (brooms)	ავშანი (Avshani)			Stem	Forest
<i>Artemisia vulgaris</i> L.	35	Food (human food, sats'ebai)	ჯორთკუდა (Jortk'uda)			Leaf	Forest
<i>Chrysanthemum leucanthemum</i> L.	81	Medicinal (heart)	წყლოულის წამალი (Tsq'ulis tsamali)			Leaf	Forest

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Cichorium intybus</i> L.	83	Food (satsébai)	ხაპრაი (Khaparai)	ვარდკაჩაჩა (Vardkachach'a Svan.)		Leaf	Forest
<i>Cirsium</i> sp.	84	Food (satsébai), medicinal (hemorrhoides)	ნარი (Nari)			Leaf	Forest
<i>Helianthus annuus</i> L.	14	Food (human food)	მზესუმზირა (Mzesumzira)			Seed	Garden
<i>Helichrysum arenarium</i> L. Moench	145	Medicinal (gastro intestinal system, heartburn)	ნეგო (Nego)			Leaf	Forest
<i>Inula helenium</i> L.	167	Cultural (smoking), medicinal (asthma, cough, gastro intestinal system, panacea, respiratory tract)	კულმუხო (Kulmukho)			Leaf, root	Forest
<i>Lactuca sativa</i> L.	171	Food (human food)	მწვანე სალათა (Mts-vane salata), სალათა (Salata)	(Berdznuli salata)		Leaf	Garden
<i>Lactuca sativa</i> L. "greek"	172	Food (human food)	მწვანე სალათა (Mts-vane salata)			Leaf	Garden
<i>Lactuca serriola</i> L.	173	Food (chave, human food, phkhali, satsébai)	ღორის ქადა (Ghoris qada), ხარნუყა (Kharnuq'a)	ხარნუყა (Kharnuq'a Tush.)		Leaf	Forest, garden
<i>Lapsana communis</i> L.	175	Food (human food)	ვაზისძირა (Vazisdzira)			Leaf	Forest
<i>Lapsana grandiflora</i> M. Bieb	176	Food (human food, soup)	მწარე ხარნუყა (Mtsare kharnuq'a)			Leaf	Forest
<i>Matricaria chamomilla</i> L.	191	Food (chave, tea), medicinal (toothache)	გვირილა (Gvirila)			Leaf, whole plant	Forest
<i>Petasites vulgaris</i> Desf.	208	Food (chave, phkhali)	ბუერა (Buera)			Leaf	Forest
<i>Pyrethrum parthenifolium</i> Willd.	241	Medicinal (flu, inflammation, oral inflammation, toothache)	გვირილა (Gvirila)			Leaf	Forest

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<i>Pyrethrum roseum</i> Adams M. Bieb.	242	Medicinal (wounds)	სარწყილა (Sartsq'ila)			Leaf	Forest
<i>Pyrethrum</i> sp.	243	Medicinal (toothache)	გვირილა (Gvirila)			Leaf	Forest
<i>Serratula quinquefolia</i> Bieb. ex Willd.	283	Food (pickled)	საღვერავი, ირმისხალა (Irmiskhala)	ნადირისფხალი (NadirisPhkhali)		Stem	Forest
<i>Sonchus asper</i> (L.) Hill.	291	Food (human food, phkhali)	ღიჭა (Ghich'a)			Leaf	Forest, garden
<i>Tagetes patula</i> L.	299	Food (human food)	ყვითელი ყვავილი - "იმერული ზაფრანა" (Qhvitheli qhvavili "Im-eruli zaphrana")			Leaf, root, seed	Garden
<i>Taraxacum confusum</i> Schischk.	300	Food (chave, phkhali)	საღვიძლა (Saghvidzla)	ბურბუშელა (Burbush-ela Tush.)		Leaf	Forest
<i>Taraxacum officinale</i> Wigg.	301	Cultural (whistles), food (chave, human food, tea), medicinal (diuretic, gallstones, liver)	საღვიძლა (Saghvidzla)	ფანდურპაპაი (Pandur-papai Tush.)		Leaf, root, stem	Forest
<i>Tussilago farfara</i> L.	313	Food (tea), medicinal (arthritis, bronchitis, cold, cough, expectorant, headache, lungs, vasodilation)	ვირისტერა (Viris'terpa)			Leaf	Forest
Bankeraceae							
<i>Hydnum repandum</i> Fr.	159	Food (human food)	ირმისტუჩა (Irmis'tucha)			Fruit	Forest
Berberidaceae							

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Berberis vulgaris</i> L.	41	Food (human food, tea, tqhemali), food (human food, phkhali), medicinal (gallbladder, liver), utensils and tools (dye)	კოტსახური (K'otsakhuri), კოტსხური (K'ots'khuri)	ქკალმანა (Esholtsmana Khev.)		Fruit, leaf, root	Forest, garden
Betulaceae							
<i>Alnus barbata</i> C. A. Mey.	21	Construction (timber), utensils and tools (dye), food (human food)	მურჯანი (Murq'ani), ლანძილი (Murq'ani)			Bark, stem	Forest
<i>Betula litwinowii</i> Doluch.	44	Construction (posts, timber), food (human food), fuel (fire-starter, firewood), medicinal (arthritis, goiter, wounds), utensils and tools (beer ladle, bowls, brooms, cups, dippers, household utensils, mortars, plows, sleds, spinning wheels, spoons, tool handles, trays, vessels for alcohol)	არყი (Arq'i)	ჟახვარ (zhakhvar Svan.)		Bark, branches, fruit, juice, root, stem	Forest
<i>Betula pendula</i> Roth	45	Medicinal (big heart)	არყო (Arq'i), მეჭეჭიანი არყო (Mechech'iani arq'i)			Leaf	Forest
<i>Betula raddeana</i> Trautv.	46	Construction (timber), utensils and tools (household utensils)	არყო (Arq'i), შავი არყო (Shavi arq'i)			Stem	Forest
<i>Corylus avellana</i> L.	9	Construction (fences, timber), food (human food, phkhali), medicinal (cough, gangrene), utensils and tools (household utensils)	თხილი (Tkhili)	შდიხ (Shdikh Svan.)		Branches, fruit, leaf, stem	Forest, garden

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Corylus pontica</i> K. Koch.	95	Construction (fences, timber), food (human food, phkhali), medicinal (cough, gangrene), utensils and tools (household utensils)	თხილი (Tkhili)	შდობ (Shdikh Svan.)		Branches, fruit, leaf, stem	Forest, garden
Boletaceae							
<i>Boletus edulis</i> Bull.	48	Food (human food)	დათიკა სოკო (Datik'a sok'o)			Fruiting body	Forest
<i>Boletus erythropus</i> Pers.	49	Food (human food)	წითელფეხა (Ts'itelp'ekha)	ხუმბუშა (Khushkhusha)		Fruiting body	Forest
Boraginaceae							
<i>Symphytum caucasicum</i> M. Bieb.	298	Medicinal (fractures, furuncle)	ლაშქარა (Lashqara), შალდაყი (Shaldaq'i)			Leaf, root	Forest, garden
Brassicaceae							
<i>Armoracia rusticana</i> G. Gaertn., B. Mey. & Scherb.	31	Food (human food)	პირშუმშა (P'irshushkha)			Root	Garden
<i>Brassica campestris</i> L. ssp. <i>oleifera</i> DC.	53	Food (human food, phkhali, sats'ebai)	შალგი (Shalgi)	გერა (Gera Tush.)		Leaf, stem	Forest
<i>Brassica oleracea</i> L.	54	Food (human food)	კომბოსტო (Kombosto)			Leaf	Garden
<i>Brassica oleracea</i> L. cauliflora	55	Food (human food)	ყავილოვანი კომბოსტო (Q'vavilovani kombosto)			Flower, leaf	Garden
<i>Brassica oleracea</i> L. red	56	Food (human food)	ლურჯი კომბოსტო (Lurji kombosto)			Leaf	Garden
<i>Brassica oleracea</i> L. var. <i>gemmifera</i> Brussels Sprouts	57	Food (human food)	ბრიუსელის კომბოსტო (Brussels kombosto)			Leaf	Garden
<i>Brassica rapa</i> L. subsp. <i>rapifera</i> Metzger	48	Food (human food)	თალგამი (Thalgami)			Fruit, leaf, root	Garden

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Brassica rapa</i> var. <i>rapa</i> L.	59	Food (human food)	თალგამურა (Thalgamura)			Root	Garden
<i>Bunias orientalis</i> L.	60	Food (chave, human food, phkhali, pickled), medicinal (against poisoning, hangover, parasites, snakebite), veterinary (helminthes)	ხატოტი (Khatoti)	გომატი (Gomat'i Tush.), გომატი (Gomat'i Tush.), ხობნუტა (Khokhnuta Khev.)		Flower, leaf, leaf young, seed, stem	Forest
<i>Capsella bursa-pastoris</i> L.	66	Food (human food, phkhali)	წიწმატურა (Ts'itsmat'ura)	ხავართა (Khavart'a)		Leaf	Forest
<i>Cardamine hirsuta</i> L.	69	Food (chachapuri, phkhali)	ტყის წიწმატი (T'q'is ts'itsmat'i)			Leaf	Forest
<i>Isatis tinctoria</i> L.	168	Utensils and tools (dye)	საღებავი მატრახა (Saghbavi matrakha)			Leaf	Forest
<i>Lepidium sativum</i> L.	181	Food (human food)	წიწმატი (Ts'itsmat'i)			Leaf	Forest
<i>Raphanus sativus</i> L. var. <i>major</i>	247	Food (human food)	ბოლოკი (Boloki), მთის ბოლოკი (Mithis boloki), შავი ბოლოკი (Shavi Boloki)			Leaf, root	Garden
<i>Raphanus sativus</i> L. var. <i>major</i> black	248	Medicinal (cold, cough)	შავი ბოლოკი (Shavi Boloki)			Root	Garden
<i>Raphanus sativus</i> L. var. <i>major</i> white	249	Food (human food)	თეთრი ბოლოკი (Tetri Boloki)			Root	Garden
<i>Raphanistrum rugosum</i> (L.) All.	250	Food (phkhali)	ბოლოკა (Boloka), შალგი (Shalgi)			Leaf, stem	Forest
<i>Sinapis arvensis</i> L.	286	Food (human food, phkhali)	გიერა (Giera), მინდვრის მდოგვი (Mindvris mdogvi)			Leaf	Forest, garden
Bryophyta							
Ground moss	43	Utensils and tools (dye)	მიწის ხავსი (Mits'is khavsi)			Whole plant	Forest

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<b>Campanulaceae</b>							
<i>Campanula biebersteiniana</i> Roem. & Schult.	61	Food (human food)	ქარტკხვი (Kartskhvi)			Flower	Forest
<i>Campanula lactiflora</i> Bieb.	62	Food (phkhali, pickled)	კეცხვი (Kitsdzishi)	კენკეშა (K'enk'asha Khev.)		Leaf, stem	Forest
<i>Campanula rapunculoides</i> L.	63	Food (human food, sats'ebai)	მაჩიტა (Machit'a), მიჩიგ'არაი (Michig'arai)	მაჩიკა (Machika Khev.)		Leaf, root	Forest
<b>Cannabaceae</b>							
<i>Cannabis sativa</i> L.	64	Food (human food), utensils and tools (rope)	კანაფი (K'anapi)			Seed, stem	Garden
<i>Humulus lupulus</i> L.	158	Food (beer)	სვე (Sve)			Flower	Garden
<b>Cantharellaceae</b>							
<i>Cantharellus cibarius</i> Fr.	65	Medicinal (hepatitis, liver)	მელაკუდა (Melakuda)			Fruiting body	Forest
<b>Caryophyllaceae</b>							
<i>Melandrium balansae</i> Boiss.	193	Food (phkhali), medicinal	ვირთბატრა (Virbat'ra), სასტკენა (Sast'kena)			Leaf	Forest
<i>Melandrium boissieri</i> Schischk.	194	Food (phkhali), medicinal, utensils and tools (whistles)	ვირთბატრა (Virbat'ra), სასტკენა (Sast'vena)	ბალანსა (Balansa Khev.)		Leaf, stem	Forest
<i>Silene lacera</i> Steven	284	Food (chachapuri, chav, human food, khinkali, phkhali)		ქვიშა მხალი (Kvisha Mkhali Tush.)		Leaf	Forest
<i>Silene wallachiana</i> Klotzsch	285	Food (human food, phkhali)	მჭივანა (mch'ivana)			Leaf	Forest
<b>Cornaceae</b>							

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<i>Cornus australis</i> C. A. Mey.	91	Utensils and tools (walking sticks)	შინდანწლა (Shvindants'la)			Stem	Forest
<i>Cornus mas</i> L.	92	Food (human food), utensils and tools (barrel cleaner, fighting sticks, stirrer, tool handles)	შვინდი (Shvindi)			Bark, branches, fruit, stem	Forest, garden
Cortinariaceae							
<i>Cortinarius violaceus</i> (L.) Fr. Gray	93	Food (human food)	ლოურჯკაბა (Lurj'kaba)			Fruiting body	Forest
Crassulaceae							
<i>Sedum caucasicum</i> Boriss.	280	Food (human food, phkhali), medicinal (arthritis, chaps, corns, furuncle, rheumatism, toothache, wounds)		კოდის დუმბა (K'ldisduma Tush.)		Leaf	Forest
<i>Sedum oppositifolium</i> Sims	281	Food (human food, phkhali), medicinal (furuncle, toothache, wounds)		კოდის დუმბა (K'ldisduma Tush.)		Leaf	Forest
<i>Sempervivum caucasicum</i> Rupr. ex Boiss.	282	Food (human food)	კოდისვაშლა (K'ldisvashla), (Pkhija), ჯორისკუდა (Jorisk'uda)	(Potoli), კოდის დუმბა (K'ldisduma Tush.)		Fruit, leaf	Forest
Cucurbitaceae							
<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai var. <i>lanatus</i>	85	Food (pickled)	საზამთრო (Sazamthro)			Fruit	Garden
<i>Cucumis sativus</i> L.	99	Food (human food, pickled)	კიტრი (K'it'ri)			Flower, fruit	Garden
<i>Cucurbita pepo</i> L.	100	Food (human food, pickled)	გოგრა (Gogra)			Fruit, leaf	Garden
<i>Cucurbita pepo</i> L. flat squash	101	Food (human food)	გოგრა (Gogra)			Fruit	Garden



Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Cucurbita pepo</i> L. var. <i>giromontia</i>	102	Food (human food)	ყაბაყი (Q'abaq'i)			Fruit	Garden
<i>Cucurbita pepo</i> L. var. <i>patisson</i>	103	Food (human food)	ყაბაყი პატისონი (Q'abaq'i patisoni)			Fruit	Garden
Cupressaceae							
<i>Juniperus sabina</i> L.	170	Medicinal (eczema, prostate, toothache), veterinary (skin problems)	ღვივა (Ghiva), ღვივა (Ghvia)	(T'sveda Tush.), (Tsq'veda)		Fruit, leaf	Forest
Dryopteridaceae							
<i>Dryopteris filix-mas</i> (L.) Schott.	111	Food (human food, phkhali, pickled), medicinal (bruises)	ჩადუნა (Chaduna)	ჩადა (Chada Tush.)		Leaf	Forest
<i>Matthucia struthiopteris</i> (L.) Todd.	192	Food (phkhali)	ჩადუნა (Chaduna)			Leaf	Forest
Eleagnaceae							
<i>Hippophaë rhamnoides</i> L.	154	Medicinal (diabetes, vitamins)	კატვი (Katsvi)			Fruit	Forest, garden
Equisetaceae							
<i>Equisetum arvense</i> L.	113	Medicinal (urinary system)	შვიტა (shvita)			Leaf	Forest
Ericaceae							
<i>Empetrum hermaphroditum</i> Hagerup	112	Food (human food), utensils and tools (brush to wash tools)	კეჭერა (Kets'era), სარეცხი (Kets'era)			Branches, fruit, leaf	Forest
<i>Oxycoccus quadripetalus</i> Gilib.	205	Food (human food)	შტოში (Shtoshi)			Fruit	Forest
<i>Vaccinium arctostaphylos</i> L.	318	Food (human food), medicinal (diabetes)	მოცვი მაღალი (Motsvi maghali)			Fruit, leaf	Forest

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<i>Vaccinium myrtillus</i> L.	319	Food (human food, marmalade, tea, wine), medicinal (decreases blood sugar, dry throat, kidney stones, tea), utensils and tools (dye)	მოცვი (Motsvi)	ჯოლი (Zholi Tush.), შელშავი (Shelshavi Khev.)		Branches, fruit, leaf	Forest
<i>Vaccinium vitis-idaea</i> L.	320	Food (human food, tea), medicinal (bedwetting in children, decreases blood sugar, liver), utensils and tools (dye)	წითელი მოცვი (Tšiteli motsvi)	სტომი (Stomi Tush.), წითელმჩა (Tsitelimocha Khev.)		Branches, fruit, leaf	Forest
Fabaceae							
<i>Cicer arietinum</i> L.	82	Food (human food)	მუხუდო (Mukhudo)			Seed	Garden
<i>Glycyrrhiza glabra</i> L.	141	Food (human food), medicinal (cough)	ძირტკბილა (Dzirt'k'bila)			Root	Forest
<i>Lathyrus roseus</i> Steven	177	Food (phkhali)	ვაზისძირა (Vazisdzira)	არჯაკელი (Arjakeli Tush.)		Leaf	Forest
<i>Lens cornicularis</i> L.	179	Food (human food)	ოსპი (Martsq'vi), ოსპი (Ospi)			Seed	Garden
<i>Phaseolus sativus</i> L.	210	Food (human food)	ლობიო (Lobio)			Fruit, seed	Garden
<i>Phaseolus sativus</i> L. climbing variety	211	Food (human food)	ლობიო (Lobio)			Fruit	Garden
<i>Phaseolus sativus</i> L. low variety	212	Food (human food)	ლობიო (Lobio)			Fruit	Garden
<i>Phaseolus vulgaris</i> L.	213	Food (human food)	ლობიო (Lobio)			Fruit, seed	Garden
<i>Pisum sativum</i> L.	218	Food (human food)	ბარდა, მუხუდო (Barda, Mukhudo)			Fruit, seed	Garden
<i>Trifolium</i> sp.	310	Medicinal (wounds), utensils and tools (dye)	სამყურა (Samq'ura)			Leaf	Forest

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Trigonella caerulea</i> (L.) Ser.	311	Food (human food)	ულუმბო (Ulumbo), შამბრიკა (Marts'q'vi), შამბრიკა (Shambrika)			Seed	Garden
<i>Vicia faba</i> L.	326	Food (human food)	ცერტვი (Tsertsvi)			Seed	Garden
<i>Vicia sativa</i> L.	327	Food (sats'ebai)	ჭეკუნტელაი (Ch'ek'un't'elai)			Leaf	Garden
Fagaceae							
<i>Carpinus caucasica</i> Grossh.	70	Utensils and tools (tool handles)	ჯაგრცხილა (Jagr'cx'ila)			Stem	Forest
<i>Fagus orientalis</i> Lipsky	115	Construction (timber), fuel (firewood)	წიგელი (Ts'ipeli)			Stem	Forest
<i>Quercus iberica</i> Steven ex M. Bieb.	246	Construction (timber), fuel (firewood), utensils and tools (barrels, furniture)	მუხა (Mukha)			Stem	Forest
Fungi							
" <i>Alnus barbata</i> fungus"	1	Food (human food)	მურყანისოკო (Murq'anisoko)			Fruiting body	Forest
<i>Fungus</i> sp. 1	125	Food (human food)	ჭრელკაბა (Ch'relk'aba)			Fruiting body	Forest
<i>Fungus</i> sp. 2	133	Food (human food)	გერდა (Gerda)			Fruiting body	Forest
<i>Fungus</i> sp. 4	135	Food (human food)	ლარგი (Largi)			Fruiting body	Forest
<i>Fungus</i> sp. 5	136	Food (human food), utensils and tools (insecticide)	მარნ-ელა (Marn'ula)			Fruiting body	Forest
<i>Fungus</i> sp. 7	137	Food (human food)	მითისოკო (Mitisoko)			Fruiting body	Forest

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Fungus</i> sp. 8	138	Food (human food)	მიწის კალმახი (Mits'is kalmakhi)			Fruiting body	Forest
<i>Fungus</i> sp. 11	126	Food (human food)	თქელასოქი (Thelasoko)			Fruiting body	Forest
<i>Fungus</i> sp. 12	127	Food (human food)	თქელასოქი (Thelasoko)			Fruiting body	Forest
<i>Fungus</i> sp. 13	128	Food (human food)	თქელასოქი (Thelasoko)			Fruiting body	Forest
<i>Fungus</i> sp. 14	129	Food (human food)	თქელასოქი (Thelasoko)			Fruiting body	Forest
<i>Fungus</i> sp. 15	130	Food (human food)	ციფქელა (Tsiphela)			Fruiting body	Forest
<i>Fungus</i> sp. 17	131	Food (human food)	ციტსელისოქი (Tsirtselisoko)			Fruiting body	Forest
<i>Fungus</i> sp. 19	132	Food (human food)	ვითელი (Viteli)			Fruiting body	Forest
<i>Fungus</i> sp. 21	134	Food (pickled)		არჩექალი (Archekali Khev.)		Fruiting body	Forest
Gentianaceae							
<i>Gentiana cruciata</i> L.	139	Medicinal (gallbladder, liver, stomach)	ნაღველა (Naghvela), ნაღველა ჯვრისებრი (Naghvela jvrisebri)			Leaf	Forest
<i>Gentiana septemfida</i> Pall.	140	Medicinal (gallstones, liver, stomach)	ნაღველა (Naghvela)			Leaf	Forest, Garden
<i>Swertia iberica</i> Fisch & C.A. Mey.	297	Food (chave)	გაბლუარაი (Gabluarai)			Leaf	Forest
Grossulariaceae							

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Grossularia reclinata</i> (L.) Mill.	142	Food (human food)	ხურტკმელი (Khurt'k'meli)			Fruit	Forest
<i>Ribes biebersteinii</i> Berl. ex DC	253	Food (human food)	მოცხარი (Motskhari)	ხუნწი (Khunt's'i Tush.)		Fruit, leaf	Forest
<i>Ribes nigrum</i> L.	254	Food (human food)	მოცხარი (Motskhari), შავი მოცხარი (Shavi motskhari)			Fruit, seed	Forest, garden
<i>Ribes orientale</i> Desf.	255	Food (human food)	ალუდა (Aluda)			Fruit	Forest
<i>Ribes rubrum</i> L.	256	Food (human food)	მოცხარი (Motskhari)			Fruit, seed	Garden
<i>Ribes vulgare</i> Lam.	257	Food (human food)	წითელი მოცხარი / ალუდა (Ts'iteli motskhari)			Leaf	Forest
Hericiaceae							
<i>Hericum erinaceus</i> (Bull.) Pers.	152	Food (human food)	ეშმაკის ბუნწი (Eshmak'is burnuti)	გულასოკო (Gulasoko Tush.)		Fruiting body	Forest
Hypericaceae							
<i>Hypericum perforatum</i> L.	161	Cultural (perfume), food (beer, tea), medicinal (enuresis, gums, nerves, panacea, ulcers), utensils and tools (dye)	კრანაზა (K'razana)			Flower, leaf, whole plant, branches	Forest, garden
Indeterminatus							
Indet sp. 6	166	Food (phkhali)	(Ch'areshi)			Leaf	Forest
Indet sp. 25	162	Food (human food)	(Tvili)			Fruit	Forest
Indet sp. 33	163	Food (phkhali)		(Iochola Khev.)		Leaf	Forest
Indet sp. 45	164	Food (pickled)		ვირდუტა (Viridutsa Khev.)		Stem	Forest

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
Indet sp. 46	165	Food (phkhali)		ჭებორჯელა (Zestrula Khev.)		Leaf	Forest
Juglandaceae							
<i>Juglans regia</i> L.	169	Food (human food), utensils and tools (dye)	ჭინჭრის-დედა (Ch'inchris-deda)	კაკალი (kakali Svan.)		Fruit, seed	Forest, garden
<i>Pterocarya pterocarpa</i> (Michx.) Kunth ex Ijinsk.	240	Utensils and tools (dye)	ლაფანი (Lapani)			Leaf	Forest
Lamiaceae							
<i>Lamium album</i> L.	174	Food (human food), medicinal (bath for small children, hair loss)	ჭინჭრის-დედა (Ch'inchris-deda)			Leaf, whole plant	Forest
<i>Leonurus quinquelobatus</i> Gilib. var. <i>caucasicus</i> Krestovsk.	180	Medicinal (heart)	შავბალახა (Shavbalakha)			Leaf	Forest
<i>Mentha aquatica</i> L.	95	Food (spice)	პიტნა (Pit'na)			Leaf	Forest
<i>Mentha longifolia</i> (L.) L.	195	Food (chave, human food, tea), medicinal (panacea)	ტყის პიტნა (T'qis pit'na)	შანტალი პიტნა (shant'ali Pitn'a Tush.)		Flower, leaf	Forest, garden
<i>Mentha x piperita</i> L.	196	Food (human food, tea), medicinal (panacea)	ბაღის პიტნა (Baghis pit'na)			Flower, leaf	Forest, garden
<i>Nepeta mussinii</i> Spreng.	200	Food (tea)	პიტნა (Pit'na)			Leaf	Forest
<i>Ocimum basilicum</i> L.	203	Food (human food)	რეჰანი (Rehani)			Leaf	Garden
<i>Origanum vulgare</i> L.	204	Food (beer, human food, spice, tea), medicinal (lungs, tea), utensils and tools (dye)	თავშავა (Tavshava)			Leaf	Forest, garden
<i>Salvia nemorosa</i> L.	274	Medicinal (enuresis)	დაჯირა (Dajira)			Leaf	Forest
<i>Salvia verticillata</i> L.	275	Medicinal (anti-inflammatory, enuresis, wounds), utensils and tools (filter)	დაჯირა (Dajira)			Leaf, whole plant	Forest, Garden

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Satureja hortensis</i> L.	277	Food (human food, tea)	ქონდარი (Kondari)			Leaf	Garden
<i>Satureja laxiflora</i> K. Koch	278	Food (human food)	მინდვრის ქონდარი (Mindvris kondari)			Leaf	Forest
<i>Thymus caucasicus</i> Willd. ex Benth	303	Food (tea)	ქონდარი (Kondari)	ბეგქონდარა (Begkondara)		Branches, flower, leaf	Forest
<i>Thymus colinus</i> Bieb.	304	Food (tea), medicinal (wounds), utensils and tools (dye)	ქონდარი (Kondari)			Leaf	Forest
<i>Thymus transcaucasicus</i> Ronninger	305	Food (human food, spice)		ბეგქონდარა (Begkondara), ბეგქონდარა (Begkondara)		Leaf	Forest
<i>Ziziphora pushkinii</i> Adams.	332	Food (tea), medicinal (antibiotic, diuretic, hypertension)	ურცი (Urtsi), ქონდარი (Kondari)	ბეგქონდარა (Bekt-kondara Tush.)		Leaf	Forest
<i>Ziziphora serpyllacea</i> M. Bieb.	333	Food (spice, tea)		ბეგქონდარა (Begkondara Tush.)		Leaf	Forest
Lauraceae							
<i>Laurus nobilis</i> L.	178	Utensils and tools (dye)	დაფნა (Dapna)			Leaf	Forest
Lepiotaceae							
<i>Macrolepiota procera</i> (Scop.) Springer	193	Food (human food)	წურქო (Tsëretso)	ხეშხეშა (Khushkhusha)		Fruiting body	Forest
Lichenes							
Rock lichen	258	Utensils and tools (dye)	ქოლდის ხავსი / ჯანგარო (K'ldis khavsi / Jangaro), ჯანგარო (Jangaro)			Whole plant	Forest
Liliaceae							

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Fritillaria lutea</i> Mill.	124	Food (human food), medicinal (hangover, heart)	ყვიტელი ღვიძის (Q'viteli ghvina)	დათვიტრის (Datv'i'tra Khev.)		Bulb, flower	Forest
<i>Lilium szovitsianum</i> Fisch. & Avé-Lall.	186	Medicinal (?)	დათვიტრის (Datvisk'i'tra)			Bulb	Forest
<i>Polygonatum glaberrimum</i> C. Koch.	222	Food (chave)	სვინტრისი (Svintrai)			Leaf	Forest
<i>Veratrum lobelianum</i> Bernh.	322	Medicinal (ektoparasites), veterinary (ektoparasites, wounds)	შხამა (Shkhama)			Leaf, root, stem	Forest
Linaceae							
<i>Linum usitatissimum</i> L.	18	Food (human food), medicinal (trauma)	ქუმელი (Kumeli)	სელის ქუმელი (Selis qumeli Khev.)		Seed	Forest, garden
Malvaceae							
<i>Malva neglecta</i> L.	198	Food (human food, phkhali)	ბალბა (Balba)			Fruit, leaf	Forest, garden
<i>Malva sylvestris</i> L.	199	Food (human food, phkhali)	ბალბა (Balba)			Fruit, leaf	Forest, garden
<i>Tilia begonifolia</i> Stev.	306	Construction (timber), cultural (smoking), medicinal (cold), utensils and tools (furniture, household utensils, rope)	ცაცხვი (Phacha), ცაცხვი (Tsatskhvi)			Bark, flower, fruit, stem	Forest, garden
<i>Tilia caucasica</i> Rupr.	307	Cultural (musical instruments), utensils and tools (household utensils, tool handles, vessels for pickling)	ცაცხვი (Phacha), ცაცხვი (Tsatskhvi), ცაცხვი (Tsatskhvi)			Stem	Forest
<i>Tilia cordata</i> Mill.	308	Utensils and tools (household utensils)	ცაცხვი (Phacha)			Stem	Forest
Marasmiaceae							



Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Marasmius oreades</i> (Bolton) Fr.	190	Food (human food)	წრიკა (Tsr'ika)			Fruiting body	Forest
Moraceae							
<i>Ficus carica</i> L.	117	Food (human food)	ლევი (Leghvi)			Fruit	Garden
Morchellaceae							
<i>Morchella conica</i> Pers	197	Food (human food)	ხარისპაშვა (Kharispashva)			Fruiting body	Forest
<i>Morchella esculenta</i> Fr.	198	Food (human food)	ხარისპაშვა (Kharispashva)			Fruiting body	Forest
Musaceae							
<i>Musa × paradisiaca</i> L.	199	Ornamental (ornamental)	ბანანი (Banani)			Whole plant	Garden
Oleaceae							
<i>Fraxinus excelsior</i> L.	123	Construction (timber), utensils and tools (tool handles)	იგანი (Ipani)			Stem	Forest
Onagraceae							
<i>Chamaenerion angustifolium</i> L. Holub.	76	Food (chachapuri)	თხატარხალა (Thkhatz'arthkhala)			Leaf	Forest
Ophioglossaceae							
<i>Botrychium lunaria</i> (L.) Sw.	50	Medicinal (panacea, wounds)	მარგალიტა (Margalita), წყლულის ბალიხი (Tsq'ulis balakhi)			Leaf, whole plant	Forest
Papaveraceae							
<i>Chelidonium majus</i> L.	77	Medicinal (panacea, warts), utensils and tools (dye)	ქრისტესიხლა (Kristesisikhla)			Latex, leaf	Forest
Parmeliaceae							

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Usnea</i> sp.	317	Utensils and tools (dye)	ირმის ხავსი (Irmis khavsi)			Whole plant	Forest
<i>Usnea barbata</i>	316	Utensils and tools (dye)	ბაღლაწო (Baghlats'o)			Whole plant	Forest
Physalaciaceae							
<i>Armillariella mellea</i> (Vahl) P. Kumm	30	Food (human food)	მანჭკვალა (Manchkvala)			Fruiting body	Forest
Pinaceae							
<i>Pinus kochiana</i> Klotzsch ex K. Koch	215	Construction (posts, timber), cultural (masticant), food (human food, sweets), fuel (firewood), medicinal (allergies, bronchitis, burns, diuretic, fungal diseases, lungs, sinusitis, tuberculosis), utensils and tools (arrows, bows, boxes, furniture, grain storage trunks, household utensils, lanterns, loom, shelves, spinning wheels, trunks)	ბუკვანი (Buk'vani), ფიჭვი (Phich'vi), ფიჭვის გორგობი (Pich'vis gorchebi), ხალცუცა (Khaltsutsa)			Bark, branches, fruit, leaf, oil, pollen, resin, root, stem,	Forest
Plantaginaceae							
<i>Plantago major</i> L.	219	Medicinal (cough, intestines, stomach, wounds)	მრავალძარღვა (Mravaldzarghva)	(Tsxradzarghva Tush.), ტხრადარღვა (Tskhradargva Khev.)		Leaf, root	Forest
Pleurotaceae							
<i>Pleurotus cornucopiae</i> (Paulet) Rolland	220	Food (human food)	მაღვალაი (Maghvali), მაჩალოსოკო (Machalosoko)			Fruiting body	Forest
<i>Pleurotus ostreatus</i> Jacq. ex Fr.) P. Kumm	221	Food (human food)	კალმახა (K'almakha)	ციფლის სოკო (Tsiplis soko)		Fruiting body	Forest

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
Poaceae							
<i>Avena sativa</i> L.	40	Food (human food)	შვრია (Shvria)	ზინთხ (Zinthkh Svan.)		Root, seed	Garden
<i>Hordeum violaceum</i> Boiss. & Huet	155	Medicinal (cancer)	ქერი (Keri)			Leaf	Forest
<i>Hordeum vulgare</i> L.	156	Food (beer, human food)	ქერი (Keri)			Seed	Garden
<i>Hordeum vulgare</i> L. ssp. <i>vulgare</i> L. var. <i>coelestre</i> L.	157	Food (human food)	ქერშველი (Kershveli)			Seed	Garden
<i>Panicum milanjianum</i> Rendle	207	Food (human food)	ფატვი (Phatvi)			Seed	Garden
<i>Secale cereale</i> L.	279	Food (beer, human food)	ჭვავი (Chvavi)		ქერშველა (Kersh-vela), ორმწკრივი (Ormts'krivi)	Seed	Forest, garden
<i>Triticum aestivum</i> L.	312	Food (beer, human food)	ხორბალი (Khorbali)		(UK'bilu puri), ოგკლი (Ipkli)	Seed	Forest, garden
<i>Zea mays</i> L.	331	Food (human food)	სიმინდი (Simindi)			Seed	Garden
Polygonaceae							
<i>Bistorta officinalis</i> Delarbre	47	Medicinal (lungs)	მატიტელა (Matitela)	ჭიჭიშვილი (Tchitchish-vili Khev.)		Flower, root	Forest
<i>Fagopyrum tataricum</i> (L.) Gaertn.	114	Food (human food)	წიწიბურა (Ts'itsibura)			Seed	Garden
<i>Polygonum alpinum</i> All.	223	Food (chachapuri, human food, khinkali, phkhali, sats'ebai), utensils and tools (dye)	წართხალი (Ts'artkhali)	ჭიჭიშვილი (Tsets'ichala Khev.)		Fruit, leaf, root, stem	Forest, garden
<i>Polygonum aviculare</i> L.	224	Medicinal (diuretic, kidneys, urinary system)	მატიტელა (Matitela)	ჭიჭიკი (Chimch'iki Tush.)		Leaf	Forest
<i>Polygonum carneum</i> C. Koch	225	Medicinal (cirrhosis, diarrhea, liver, lungs)	ღვალთურა (Dvalura), მატიტელა (Matitela)	ჭიჭიშვილი (Tchitchish-vili Khev.)		Flower, leaf, root	Forest, garden

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Polygonum hydropiper</i> L.	226	Medicinal (fractures)	ჩაღანდრი (Chaghandri)			Leaf; whole plant	Forest
<i>Polygonum</i> sp.	227	Food (phkhali)	მამლაყინა (Mamlaq'ints'a)			Leaf	Forest
<i>Rumex acetosa</i> L.	266	Food (chachapuri, human food, phkhali, pickled, sats'ebai)	მჯაუნა (Mzhauna), მწყემბომევაია (Mts'q'emst mzhaviai), ყანის მჯავია (Qanis mzhaviai)			Leaf, stem	Forest
<i>Rumex acetosella</i> L.	27	Food (chachapuri, human food, phkhali, pickled)	მჯაუნა (Mzhauna)			Leaf	Forest
<i>Rumex alpinus</i> L.	28	Food (chave, phkhali, pickled), medicinal (colitis, haemorrhoids, intestines, swellings, tumors), utensils and tools (dye)	ღოლო (Gholo)	საგუგა (Saguga Khev.), ჭირთალი (Chirthali Khev.), ჭირტალი (Chirtali Tush.)		Leaf, root, seed, stem	Forest
<i>Rumex crispus</i> L.	269	Food (chave, human food, phkhali, pickled), medicinal (diarrhea), utensils and tools (dye)	ღოლო (Gholo)			Leaf, root, seed, stem	Forest
<i>Rumex scutatus</i> L.	270	Food (human food, phkhali, pickled)	ლახტარა (Lakht'ara), კვიშის მჯავია (Kvishis mzhavia)			Leaf, stem	Forest
<i>Rumex tuberosus</i> L.	271	Food (spice)	მჯაუნა (Mzhavia)			Leaf	Forest
Polyodiaceae							
<i>Polypodium vulgare</i> L.	228	Food (human food, sugar), medicinal (cough)	კილაშურა (K'ilamura), ძირტკბილა (Dzirt'k'bila)			Root	Forest
Polyporaceae							

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Piptoporus betulinus</i> (Bull.) P. Karst.	216	Medicinal (cancer)	ჩაგა (Chaga)			Fruiting body	Forest
Primulaceae							
<i>Primula luteola</i> Rupr.	230	Food (satsébai)		ვაშლისუღა (Vashlisula Tush.)		Leaf	Forest
<i>Primula macrocalyx</i> Bunge	231	Food (chave, human food, phkhali), medicinal (barrenness)	ფურსულა (Phurisula)	ვაშლისუღა (Vashlisula Tush.)		Leaf	Forest
<i>Primula woronowii</i> Losinsk.	232	Food (phkhali)	ტყის ფურსულა (T'q'is purisula)	ვაშლისუღა (Vashlisula Tush.)		Leaf	Forest
Psathyrellaceae							
<i>Coprinopsis atramentaria</i> (Bull.) Redhead, Vilgalys & Moncalvo	88	Food (human food)	მელანა (Melana)			Fruiting body	Forest
Ranunculaceae							
<i>Aranuncus vulgaris</i> Raf.	37	Food (pickled)	მეკენძალა (Mekendzala)			Leaf, stem	Forest
<i>Helleborus caucasicus</i> R. Br.	146	Medicinal (sinusitis), veterinary (bad liquid, gas)	ხარისძირა (Kharisdzira)			Root	Forest
Rhododendraceae							
<i>Rhododendron caucasicum</i> Pall.	252	Food (beer, dye, human food, satsébai, tea), medicinal (cold, digestive system, diuretic, gallstones, hair loss, hangover, heart, lowers potency), utensils and tools (dye)	დეკა (Deka)			Branches, flower, leaf, seed	Forest
<i>Rhododendron luteum</i> Sweet	251	Construction (roof support), poison (toxic)	იელი (Ieli)			Branches, leaf, whole plant	Forest, garden
Rosaceae							

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Cotoneaster multiflorus</i> Bunge	96	Food (human food)	ვაშლანა (Vashlana)			Fruit	Forest
<i>Crataegus curvisepala</i> Lindm.	97	Food (tea)		შავი (Shavi Khev.)		Fruit	Forest
<i>Crataegus pentagyna</i> Waldst.	98	Food (human food, tea), medicinal (heart, hypertension), utensils and tools (dye)	კუნელი (K'uneli), შავი კუნელი (Shavi K'uneli)	შავი (Shavi Khev.)		Fruit	Forest
<i>Cydonia oblonga</i> L.	104	Food (human food)	კომში (K'omshi)			Fruit	Garden
<i>Filipendula ulmaria</i> (L.) Mill.	118	Medicinal (cold)	ქაფურა (Kapura)			Root, whole plant	Forest
<i>Fragaria vesca</i> L.	120	Food (human food, pickled)	მარყვი (Martsq'vi), ტყის მარყვი (Tqis martsq'vi)			Fruit	Forest
<i>Fragaria virginiana</i> Mill.	121	Food (human food)	ხენდრო (Khendro)			Fruit	Garden
<i>Fragaria</i> × <i>ananassana</i> Duchesne ex Rozier	122	Food (human food)	მარყვი (Martsq'vi)			Fruit	Garden
<i>Malus domestica</i> L.	195	Food (human food)	ვაშლი (Vashli)			Fruit	Garden
<i>Malus orientalis</i> Uglizk.	196	Food (alcohol, human food)	მაჯალო (Mazhalo)			Fruit	Forest, garden
<i>Malus pumila</i> Mill. var. <i>paradisiaca</i> C. K. Schneid.	197	Food (human food)	სამოთხის ვაშლი (Samoikhis vashli)			Fruit	Garden
<i>Padus racemosa</i> (Lam.) Gilib.	206	Food (alcohol, human food, tea), medicinal (diarrhea), utensils and tools (dye)	შოთხვი (Shotkhvi)			Fruit, leaf	Forest, garden
<i>Prunus avium</i> (L.) L.	233	Cultural (musical instruments), food (human food)	ფალანგარა (Palantsara), ბალამწარა (Balamts'ara), ბალი (bali)			Fruit, stem	Forest, garden
<i>Prunus cerasus</i> L.	234	Food (alcohol, human food)	ალუბალი (Alubali)			Fruit	Forest, garden

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Prunus divaricata</i> Ledeb.	235	Food (human food)	ტყემალი (Tqemali)			Fruit	Forest
<i>Prunus laurocerasus</i> L.	236	Food (human food)	წყავი (Tzqhavi)			Leaf	Garden
<i>Prunus persica</i> (L.) Batsch	237	Food (human food)	ატამი (Tami)			Fruit	Garden
<i>Prunus spinosa</i> L.	238	Food (chave, human food)	კვიჩხაი (Kvinchkhai), კვიჩხი (Kvrinchkhi)			Fruit	Forest, garden
<i>Prunus × domestica</i> L.	239	Food (human food, pickled)	ქლიავი (Kliavi)		ჭანჭური (Ch'anch'uri)	Fruit, stem	Forest, garden
<i>Pyrus caucasica</i> Fed.	244	Construction (timber), food (alcohol, human food, syrup), utensils and tools (household utensils)	პანტა (Pant'a)			Fruit, stem	Forest, garden
<i>Pyrus communis</i> L.	245	Food (human food)	მხალი (Mshali)			Fruit	Garden
<i>Rosa canina</i> L.	29	Food (beer, tea), medicinal (vitamins)	ასკილი (Ask'ili)			Fruit	Forest
<i>Rosa pimpinellifolia</i> Boiss.	260	Food (beer, human food, tea)	ასკილი (Ask'ili), შავი ასკილი (Shavi Ask'ili)			Fruit	Forest
<i>Rosa</i> sp.	261	Food (tea)	ასკილი (Ask'ili)			Fruit	Forest
<i>Rubus fruticosus</i> L.	263	Food (human food)	მაყვალი (Maqvali), რუსული მაყვალი (Rusuli maq'vali)			Fruit	Forest, garden
<i>Rubus idaeus</i> L.	264	Food (human food, tea), medicinal (cold, wounds)	ჯოლი (Zholo)	ხვადა (Khvapa Tush.), Малина (Malina Russ.)		Fruit, leaf	Forest
<i>Rubus saxatilis</i> L.	265	Food (chave, human food)	ჯოლი-დედა (Zholi-deda), ხახამა (Khakhama)	მწეროიფქო (Mts'ert'ipkha Khev.), წერტოფხლა (T'sert'ipkha Khev.)		Fruit	Forest
<i>Sorbus boissieri</i> C. K. Schneid.	292	Food (human food), medicinal (hypertension)	ცირცელი (Tsirtseli)			Fruit	Forest

Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Sorbus caucasigena</i> Kom.	293	Food (alcohol, beer, human food, marmalade), medicinal (blood pressure, cramps, heart, hypertension), utensils and tools (household utensils, tool handles)	ცირსელო (Tsirtseli)			Fruit, leaf, stem	Forest, garden
<i>Spiraea hypericifolia</i> L.	295	Utensils and tools (brooms)	გრაკლა (Grak'la)	მაკატი (Makatzi Khev.)		Stem	Forest
Rubiaceae							
<i>Rubia tinctorum</i> L.	262	Utensils and tools (dye)	ენდრო (Endro)			Fruit, root, whole plant	Forest
Russulaceae							
<i>Russula rosea</i> Pers.	272	Food (human food)	წითლოთო (Ts'it'ilio)			Fruiting body	Forest
Salicaceae							
<i>Populus tremula</i> L.	229	Construction (timber), cultural (musical instruments), utensils and tools (household utensils, vessels)	ვერხვი (Verkhvi)			Stem	Forest, garden
<i>Salix caprea</i> L.	273	Animal food (fodder), construction (timber, walls), medicinal (arthritis, gallstones, kidneys), utensils and tools (baskets, bows, snowshovels, tool handles, tough utensils)	მდგნალი (Mdgnali)	ფობვი (Pokhvi Tush.)		Bark, leaf, stem	Forest
Sapindaceae							
<i>Acer campestre</i> L.	2	Utensils and tools (furniture, tool handles)	ნეკერჩხალი (Nek'erkhkhali)			Stem	Forest
<i>Acer pseudoplatanus</i> L.	3	Utensils and tools (plane, spinning wheels)	მთის ბოკვი (Mt'is bok'vi)			Stem	Forest



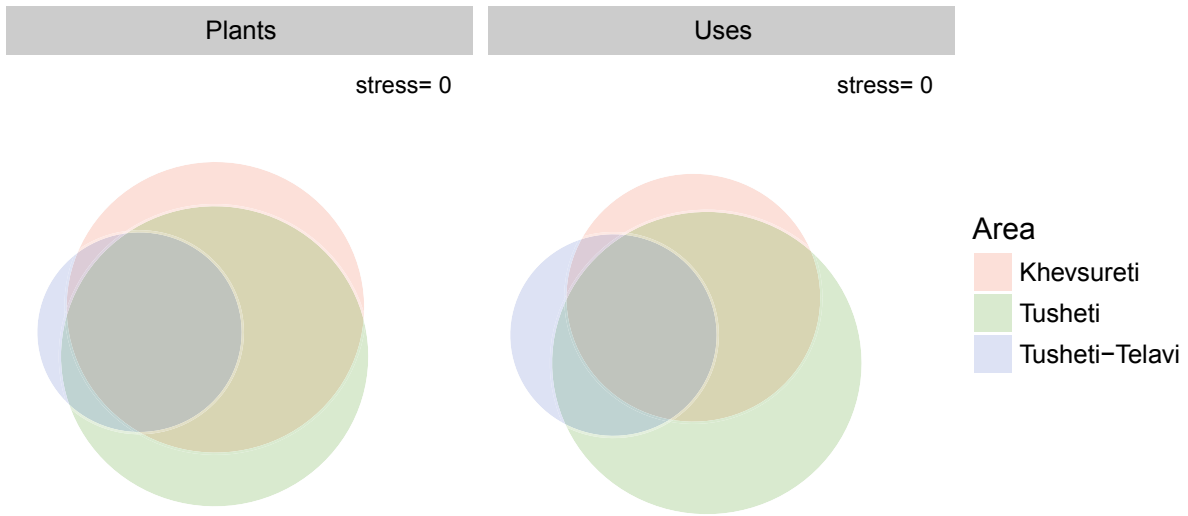
Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Acer trautvetteri</i> Medw.	4	Utensils and tools (barrels, bowls, household utensils, spoons, trays, vessels)	ბოკვი (Bok'vi), ბოკვი (Bok'vi)			Stem	Forest
Scrophulariaceae							
<i>Verbascum</i> sp.	323	Medicinal (gallbladder, hemorrhoides, kidneys)	ქერიფქლა (Keripkla)			Leaf	Forest
Smilacaceae							
<i>Smilax excelsa</i> L.	287	Food (phkhali)	ეკალღიჭი (Ek'alghichi)			Stem	Forest
Solanaceae							
<i>Capsicum annuum</i> L.	67	Food (human food)	წიწაკა (Ts'isak'a)	მწარე წიწაკა (Mts'are ts'its'ak'a Khev.)		Fruit	Garden
<i>Capsicum annuum</i> L. var. Sweet Bulgarian	68	Food (human food)	წიწაკა წითელი (Tzit-zaka tzhiteli)	ძაფანა (Dzaphana Svan.)		Fruit	Garden
<i>Hyoscyamus niger</i> L.	160	Cultural (hallucinogenic), medicinal (anti-fungal, toothache)	ლენცოფა (Lentsopa), საპინა (Sap'ina)			Leaf, seed	Forest
<i>Lycopersicon esculentum</i> L.	192	Food (human food, pickled)	პამიდორი (P'amidori)			Fruit, stem	Garden
<i>Nicotiana rustica</i> L.	201	Cultural (masticant, smoking, medicinal (arthritis, bronchitis, sore throat, tonsillitis, wounds))	ბურნუთი (Burnuti), წეკო (Ts'eko)	წეკვა (Tsekva Khev.)		Leaf, stem	Garden
<i>Nicotiana tabacum</i> L.	202	Cultural (smoking, snuff), medicinal (arthritis, bronchitis, digestive system, sinusitis, skin problems)	ბურნუთი (Burnuti), წეკო (Ts'eko), ჯოკარი (Jokari)	წეკვა (Tsekva Khev.)		Leaf	Forest, garden
<i>Physalis alkekengi</i> L.	214	Food (human food)	ონტ'კოფა (Ont'kopa)			Leaf	Forest
<i>Solanum melongena</i> L.	288	Food (human food)	ბადრიჯანი (Badrijani)			Fruit	Garden

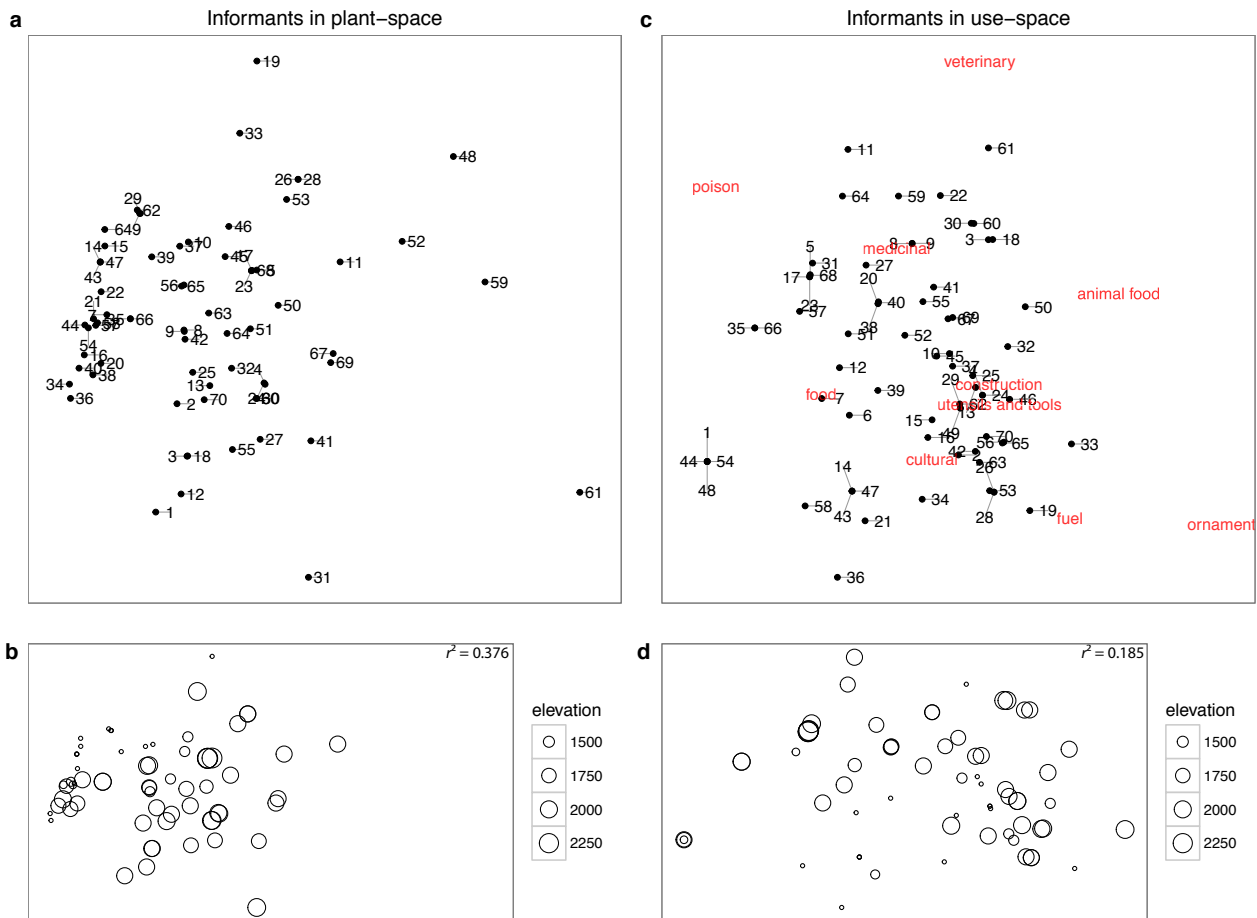
Tab. 1 Continued

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Solanum nigrum</i> L.	289	Medicinal (toothache)	ძაღლყურძენა (Dzaghliq'urdzena)			Stem	Forest
<i>Solanum tuberosum</i> L.	290	Food (alcohol, chachapuri, human food, phkhali, pickled)	კარტოფილი (K'artopili)			Leaf, root	Garden
Staphyleaceae							
<i>Staphylea colchica</i> Steven	296	Food (human food, pickled)	ჯონჯოლი (Jonjoli)			Flower, root	Forest, garden
Taxaceae							
<i>Taxus baccata</i> L.	302	Utensils and tools (tool handles)	ურთხელი (Urtkheli)			Stem	Forest
Thymeleaceae							
<i>Daphne caucasica</i> Pall.	105	Medicinal (toothache), veterinary (ektoparasites)	ზარავანდი (Zaravandi)	ზარავანდი (Majaghveri Khev.)		Leaf, stem	Forest
<i>Daphne glomerata</i> L.	106	Medicinal (toothache)	წიბა (Ts'iba)	მოგოცხარა? (Mogozhara Khev.)		Leaf	Forest
<i>Daphne mezereum</i> L.	107	Medicinal (toothache)	მაჯალვერი (Majaghveri)	მოგოცხარა? (Mogozhara Khev.)		Leaf	Forest
<i>Daphne pontica</i> L.	108	Medicinal (tea)		ზარავანდი (Majaghveri Khev.)		Leaf	Forest
Tricholomataceae							
<i>Lepista sordida</i> (Schumach.) Singer	182	Food (human food)	ღრუბელი (Ghrubeli)			Fruiting body	Forest
<i>Tricholoma aurantium</i> (Schaeff.) Ricken	309	Food (human food)	ხობის მკერდი (Khokhis mk'erd'i)			Fruiting body	Forest
Ulmaceae							
<i>Celtis caucasica</i> Willd.	72	Utensils and tools (spindles)	აკაკის ხე (Akakis-khe)			Stem	Forest

Family / Scientific name	Collection # TUSH	Use-category (use description)	Georgian name (transliteration)	Name other dialect (transliteration other dialect)	Georgian variety name (variety transliteration)	Part used	Location
<i>Ulmus glabra</i> Huds.	314	Construction (timber)	თელა (Tela)			Branches	Forest
Urticaceae							
<i>Urtica dioica</i> L.	315	Animal food (fodder), food (beverage, chachapuri, chavre, human food, phkhali), medicinal (burns, hypertension)	ჭინჭარი (Chinchari)			Leaf, stem	Forest
Valerianaceae							
<i>Valeriana officinalis</i> L.	321	Food (tea), medicinal (cold, cough, heart, nerves, pleuritis, pneumonia)	კატბალახა (K'at'abalakha)	გულბანდი (Gulbandi Tush.)		Leaf, root	Forest
Violaceae							
<i>Viola arvensis</i> L.	328	Food (phkhali)	პატარძალა (P'atardzala)			Leaf	Forest
Viscaceae							
<i>Viscum album</i> L.	329	Medicinal (heart, hypertension)	ფიჭორი (Pitri)			Leaf	Forest
Vitaceae							
<i>Vitis vinifera</i> L.	330	Food (human food)	ვაზი (Vazi), ყურძენი (Qhurzeni)			Fruit	Garden



**Fig. 2** Proportional Euler diagrams of plants and usage shared among areas within Tusheti-Khevsureti.



**Fig. 3** Informants from the Tusheti-Khevsureti region ordered by their distance in plants reported (a,b) and in uses reported (c,d).

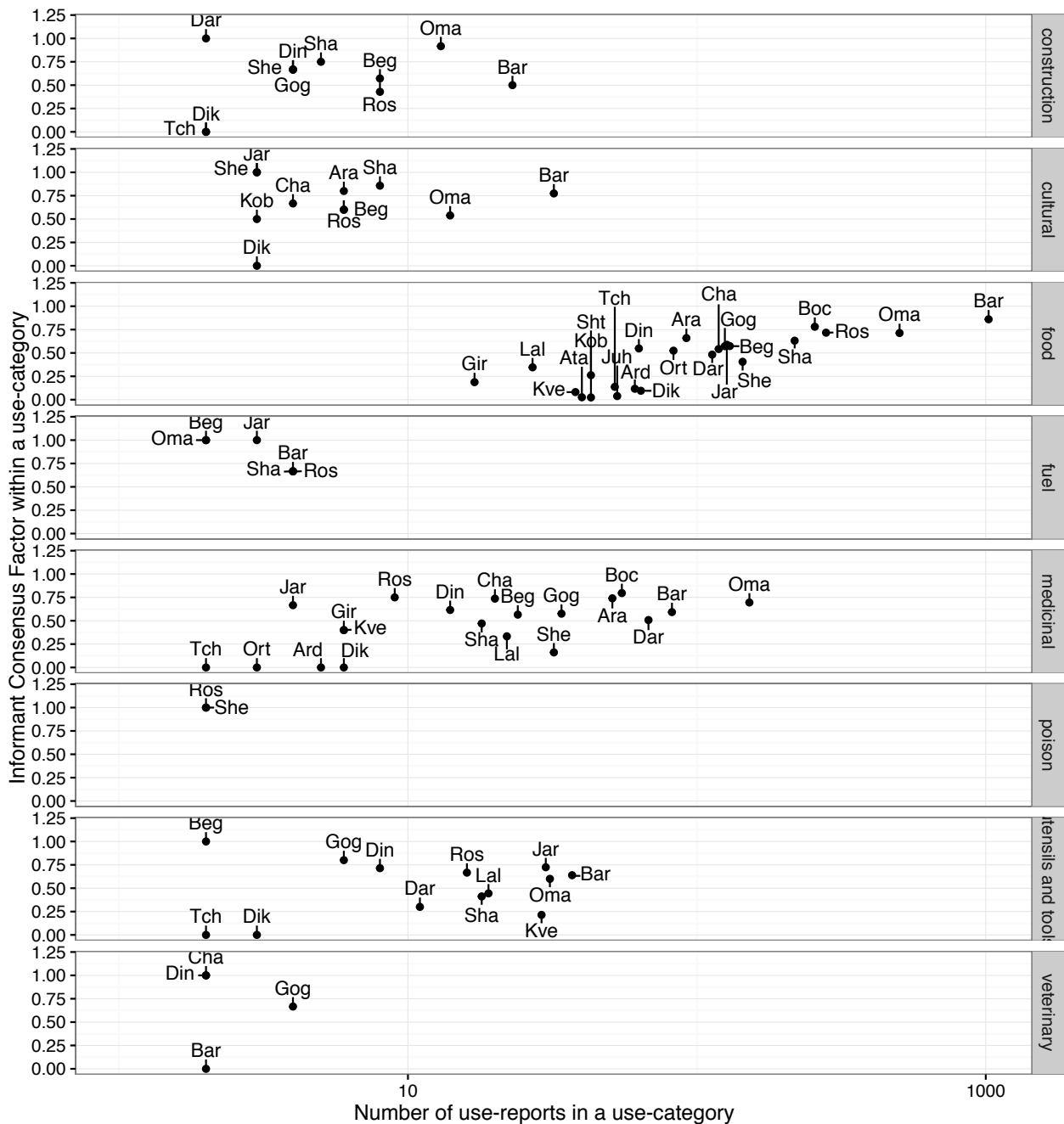


Fig. 4 Informant consensus plotted over number of use-reports for each use-category among informant communities.

### Informant consensus

Number of UR was highest across all communities in the food and medicinal use-categories (Fig. 4, Tab. 2), and IFC generally increased with the number of UR. However, some communities/categories with fewer UR showed a high degree of IC, either within a certain category (e.g., in Omalo community of plants used for construction) or across all categories (e.g., in Dino community). Certain uses, particularly poison and veterinary, were rare and/or geographically limited.

**Tab. 2** Mean informant consensus across use-categories among informant communities, with total number of use-reports and taxa.

Community	# Use-categories	# Reports	# Taxa	Mean ICF	ICF SD
Aragvispiri	3	149	48	0.73	0.07
Ardoti	3	67	60	0.06	0.08
Atabe	1	40	39	0.03	NA
Barisakho	7	1203	216	0.58	0.28
Beghelas Tchala	6	172	76	0.72	0.22
Bochorna	2	311	69	0.79	0.01
Chagsopeli	4	145	64	0.74	0.19
Dartlo	5	195	103	0.57	0.30
Diklo	6	79	73	0.02	0.04
Dino	5	91	41	0.71	0.17
Girevi	2	23	18	0.29	0.15
Gogrulta	5	173	75	0.66	0.09
Jarvoseli	6	168	67	0.80	0.19
Juhta	3	55	53	0.04	NA
Kobulo	3	47	45	0.26	0.34
Kvemo Alvani	6	76	65	0.23	0.16
Laliskuri	4	69	45	0.37	0.06
Omalo	8	717	217	0.74	0.18
Ortskali	2	86	43	0.26	0.37
Roshka	7	325	100	0.69	0.17
Shatili	6	271	108	0.63	0.17
Shenako	6	186	118	0.65	0.37
Shtrolta	1	43	32	0.26	NA
Tchesho	6	60	53	0.03	0.07

### Plant relative importance

Although the three different plant species importance ranking metrics produced somewhat different rankings, two tree species, *Pinus kochiana* Klotzsch ex K. Koch and *Betula litwinowii* Doluch., stood out as among the highest ranked species by any metric. Along with these two tree species, CI (Tab. 3) prioritized species of diverse life-forms and uses, even giving prominence to non-plant species *Lycoperdon perlatum* Pers. / *Lycoperdon pyriforme* Schaeff. and *Cantharellus cibarius* Fr. In contrast, species with especially high UD tended to be woody species although the top 95th percentile list (Tab. 4) also includes several herbaceous species. Species with high UV (Tab. 5) were mostly managed/domesticated species from home orchards, gardens, or farms.

Our results confirmed our hypotheses that plant use knowledge in general was higher in isolated high elevation communities, and that the use of home gardens was more restricted to lower elevation settings, although less than expected.

**Tab. 3** The 95th percentile species ranked by cultural importance.

Scientific name	Cultural importance	Use-diversity	Use-value
<i>Lycoperdon perlatum</i> Pers. / <i>Lycoperdon pyriforme</i> Schaeff.	3.00	1.10	0.09
<i>Pinus kochiana</i> Klotzsch ex K. Koch	2.48	2.57	1.07
<i>Betula litwinowii</i> Doluch.	2.28	2.79	0.96
<i>Nicotiana rustica</i> L.	2.00	1.79	0.49
<i>Acer trautvetteri</i> Medw.	2.00	1.58	0.13
<i>Polygonum carneum</i> C. Koch	2.00	1.33	0.09
<i>Helleborus caucasicus</i> R. Br.	2.00	1.04	0.06
<i>Cannabis sativa</i> L.	2.00	0.69	0.29
<i>Fagus orientalis</i> Lipsky	2.00	0.69	0.14
<i>Viscum album</i> L.	2.00	0.69	0.09
<i>Cantharellus cibarius</i> Fr.	2.00	0.69	0.06
<i>Raphanus sativus</i> L. var. <i>major</i> (black)	2.00	0.69	0.06
<i>Acer campestre</i> L.	2.00	0.69	0.03
<i>Acer pseudoplatanus</i> L.	2.00	0.69	0.03
<i>Aethusa cynapium</i> L.	2.00	0.69	0.03
<i>Angelica tatiana</i> Bordz.	2.00	0.69	0.03
<i>Lapsana grandiflora</i> M. Bieb	2.00	0.69	0.03
<i>Nicotiana tabacum</i> L.	1.90	1.61	0.29

## Discussion

Plant species, and uses, found in our study, showed clear relations to the wider Caucasus – Asia Minor – Balkans cultural complex, showing broad overlap with other studies, forming part of what Biscotti and Pieroni [11] described as “hidden Mediterranean diet”. The species number found was, however, far higher than in most published studies from either the region or the wider Mediterranean and Eurasia region, with species counts between 44–330 [12–30]. The highest number in these studies was, however, derived from a combination of food plants all over Italy [18]. The species numbers used in the study region are, however, comparable, because, although the surface area of the study region was bigger than the areas of some of the comparative studies, the number of interviewees in each village was normally low (often only 1–2), since many villages were depopulated. The overall number of interviewees was, however, either similar, or lower in the study region. Just across the Caucasus range, in Dagestan, with a very similar cultural background, the use of wild vegetables was much lower than in the study region (24 species only), while all reported uses coincided [31]. The lower number of participants in Dagestan (20, in only one village) might help to explain the divergence. The research time in Dagestan was, however, much longer. The number of participants in Tusheti, the closest study region in Georgia, was only about twice as high., but all reported uses coincided [31]. The much larger incidence of wild plant use for food in Tusheti might stem from the long isolation and high altitude location of the whole region, where agriculture and home gardening are relatively recent arrivals after the construction of the main access road in the 1970s. However, a very similar structure of plant use could be observed all over Georgia [32,33]. Interestingly, medicinal plant species tended to coincide much more with other studies in the region [14,34–43].

**Tab. 4** The 95th percentile species ranked by use-diversity.

Scientific name	Cultural importance	Use-diversity	Use-value
<i>Betula litwinowii</i> Doluch.	2.28	2.79	0.96
<i>Pinus kochiana</i> Klotzsch ex K. Koch	2.48	2.57	1.07
<i>Salix caprea</i> L.	1.40	2.29	0.33
<i>Rhododendron caucasicum</i> Pall.	1.52	2.09	0.69
<i>Sedum caucasicum</i> Boriss.	1.29	1.85	0.26
<i>Nicotiana rustica</i> L.	2.00	1.79	0.49
<i>Berberis vulgaris</i> L.	1.33	1.77	0.31
<i>Viburnum opulus</i> L.	1.88	1.77	0.44
<i>Inula helenium</i> L.	1.83	1.73	0.20
<i>Bunias orientalis</i> L.	1.47	1.70	0.39
<i>Rumex crispus</i> L.	1.78	1.68	0.47
<i>Carum carvi</i> L.	1.32	1.65	0.36
<i>Tussilago farfara</i> L.	1.50	1.62	0.34
<i>Agasyllis latifolia</i> (Bieb.) Boiss.	1.44	1.61	0.93
<i>Cornus mas</i> L.	1.67	1.61	0.07
<i>Nicotiana tabacum</i> L.	1.90	1.61	0.29
<i>Tilia begonifolia</i> Stev.	1.22	1.59	0.16
<i>Taraxacum officinale</i> Wigg.	1.50	1.59	0.30

The use of *Rhododendron* sp. to clear beer, and as medicinal infusion, is rather unique, given the reports of toxicity of the species which extend from ancient Greek and Chinese sources [44,45] to modern cases of poisoning [46]. In the main center of diversity of the genus, careful use of certain species has been reported for food and medicine [47–50]. The protection of relatively common species like *Rhododendron caucasicum*, closely linked to its traditional use, has been shown as essential for alpine treelines often formed by *Betula litwinowii* [51].

The reported food use of acorns of *Quercus iberica* links to regional food use history, as various species of *Quercus* have been reported as food from Turkey since prehistorian times [52].

## Conclusions

For Tusheti–Khevsureti, geographic differences and elevation structure both explain what kinds of ways people use plants and what plants they use. However, there was a degree of variance in the plants and uses informants reported that was not explained by these factors.

The genetic erosion of traditional crop varieties was previously of little concern for the mountainous areas of Georgia. These served as a repository of ancient crops until the 1990s. Recently, the most prevalent cause for genetic erosion of traditional crop varieties is the outmigration in mountain regions as reaction to the harsh economic conditions and lack of modern infrastructure [3,53–55]. The shift from traditional cultivars to modern high-yielding crops, which took place in the lowlands much earlier, began in mountain villages towards the end of Soviet occupation. The closure of frontiers, e.g., to Chechnya and Dagestan greatly reduced market access



Tab. 5 The 95th percentile species ranked by use-value.

Scientific name	Cultural importance	Use-diversity	Use-value
<i>Solanum tuberosum</i> L.	1.15	0.58	1.14
<i>Allium victorialis</i> L.	1.78	1.20	1.10
<i>Rubus idaeus</i> L.	1.12	0.52	1.10
<i>Pinus kochiana</i> Klotzsch ex K. Koch	2.48	2.57	1.07
<i>Raphanus sativus</i> L. var. <i>major</i>	1.00	0.00	0.99
<i>Cucumis sativus</i> L.	1.08	0.58	0.97
<i>Allium sativum</i> L.	1.00	0.08	0.97
<i>Betula litwinowii</i> Doluch.	2.28	2.79	0.96
<i>Vaccinium myrtillus</i> L.	1.26	0.85	0.94
<i>Daucus carota</i> L. ssp. <i>sativus</i>	1.00	0.00	0.94
<i>Agasyllis latifolia</i> (Bieb.) Boiss.	1.44	1.61	0.93
<i>Anethum graveolens</i> L.	1.00	0.00	0.90
<i>Urtica dioica</i> L.	1.27	1.37	0.89
<i>Coriandrum sativum</i> L.	1.00	0.00	0.89
<i>Petroselinum crispum</i> (Mill.) Fuss.	1.00	0.24	0.87
<i>Brassica oleracea</i> L.	1.00	0.00	0.83
<i>Chaerophyllum caucasicum</i> Schischk.	1.26	1.20	0.80
<i>Sorbus caucasigena</i> Kom.	1.28	1.55	0.79
<i>Viburnum lantana</i> L.	1.44	1.23	0.79
<i>Beta vulgaris</i> L.	1.06	0.21	0.79

for local cereals. Comparative changes have been reported from other former Soviet republics [56]. Across Georgia, abandoned terraces indicate where grain was formerly grown. Many old barns still contain clay lined grain storage baskets made from *Salix* sp., which quite often contain old grains. However, essentially no cereals have been grown in the surveyed high altitude regions of Georgia for decades, according to all participants recalling cereal cultivation at all. Nowadays, villagers buy wheat to distil alcohol or to bake bread, or buy commercial beer making mixtures to brew their own beer [3].

The maintenance of home gardens in Georgia serves as socio-ecological memory, like in many other regions [57,58], and is an irreplaceable tool to maintain Georgian culture. This represents not only a reflectance of growing popularity of gardening and gathering [59,60], but cultural survival. The tremendous variety of useful plants in the study region might well provide a reservoir for food security, similar to the Balkans [61]. However, climate change is affecting both floristic diversity in the wild and in gardens, both in the Caucasus as well as continent wide [62,63]. The rise of tourism in Georgia might help to maintain the very diverse food uses in the region, while medicinal uses are most likely going to be a memory of the past soon.

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