

## Ethnopharmacology of *liakra*: traditional weedy vegetables of the Arbëreshë of the Vulture area in southern Italy

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### Abstract

An ethnobiological field study on food plants and medicinal foods traditionally consumed in three Arbëresh (ethnic Albanian) communities in northern Lucania (southern Italy) document approximately 120 botanical taxa used for these purposes. Non-domesticated food vegetables (*liakra*), mostly gathered during the spring season, play a central role as traditional functional food. Quantitative ethnobotanical, ethnotaxonomical, ethnoecological, ethnogastronomical, and ethnopharmacological aspects related to gathering, processing, cooking and consumption of *liakra* are discussed. Unusual food species, such as *Lycium europeum*, *Centaurea calcitrapa*, and a few spontaneous weedy Asteraceae and Brassicaceae species are locally used in the kitchen. Most of these are very poorly known phytochemically and phytopharmacologically. Moreover, an analysis of taste perception of the most commonly used botanical foods was conducted in the village of Ginestra. Arbëresh taste classification and indigenous criteria related to the perception of bitter taste in considering non-cultivated plants as food or medicine are discussed as well. © 2002 Elsevier Science Ireland Ltd. All rights reserved.

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### 1. Introduction

In recent decades it has become obvious that food and medicine are closely related (Etkin, 1996). Plants may be used both as a medicine and a food and it is difficult to draw a line between these two groups: food may be medicine, and vice versa. For example, many studies on potential health benefiting aspects of traditional foods show that such plants have specific pharmacological effects. Also, the important role of botanicals gathered from the immediate environment, and especially of leafy wild botanicals used in indigenous communities, has represented the focus of a number of field studies concentrated in Africa (Fleuret, 1979; Johns and Kokwaro, 1991; Humphrey et al., 1993; Etkin and Ross, 1994; Ogle and Grivetti, 1995a,b,c; Johns et al., 1996a,b;

Schackleton et al., 1998; Vainio-Mattila, 2000; Asfaw and Tadesse, 2001; Marshall, 2001; Mertz et al., 2001), in central and southern America (Ladio, 2001; Vierya-Odilon and Vibrans, 2001), and central Asia (Khasbagan et al., 1999, 2000).

In the Mediterranean, only very few ethnobotanical surveys have paid specific attention to this aspect (Forbes, 1976a; Corsi and Pagni, 1979; Paoletti et al., 1995; Bisio and Minuto, 1999; Pieroni, 1999; Ertug, 2000; Tardio-Pato et al., 2001) even though Mediterranean dietary traditions and consumption of vegetables and olive oil have often been correlated with a lower rate of coronary heart disease, diabetes, and cancer, and with a greater longevity amongst the population (Matalas et al., 1999; Kafatos et al., 2000; Holdsworth et al., 2000; Trichopoulou et al., 2000a). Ethnobotanical and ethnopharmacological surveys in southern Europe have mostly dealt with popular phytotherapeutic remedies and little attention has been paid to functional foods, i.e. to food with additional health benefiting properties.

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From an ethnopharmacological perspective, the dietary contribution of non-domesticated vegetables (and specifically their antioxidant properties) is now regarded as quite noteworthy. Of particular interest are the pharmacological properties of these plants and of the constituents isolated from them (Uiso and Johns, 1995; Chapman et al., 1997; Lionis et al., 1998; Johns, 1999; Grivetti and Ogle, 2000; Trichopoulou et al., 2000b). Moreover, in traditional societies, plant and animal resources are often used multi-contextually, for example, as food and for medicine (Etkin and Ross, 1982, 1983; Fleuret, 1986; Cox, 1994; Etkin, 1996; Heinrich, 1998; Seixas and Begossi, 2001). While weeds have been found to represent a very important component of indigenous pharmacopoeias (Stepp and Moerman, 2001) and the consumption of weedy greens has often been perceived to have a medicinal ‘character’ (Pieroni, 2000, 2001), very little attention has been paid to food weeds, and to their role as health functional foods and possible sources of new nutraceuticals. Such studies could be of additional interest in the development of new nutraceuticals, which may help especially Western societies to cope with prevalent chronic, degenerative, and ageing related diseases.

This study, based in three small ethnic Albanian (Arbëresh) communities in northern Lucania (southern Italy), had the aim to record the use of traditional consumed weedy vegetables, their indigenous perception and the cultural practices associated with it, including the gathering, processing, cooking and consuming of plants as part of the daily diet. It has represented as well the basis for additional pharmacological studies on selected species used as local food with ascribed health benefiting effects, which had focused potential antioxidant and anti-inflammatory activities of the extracts derived from the Arbëresh *liakra*.

## 2. Ethnographic background and methods

### 2.1. The Arbëreshë in Lucania

The Arbëreshë are descendants of Albanians, who emigrated in several flows from the 15th to the 18th century to diverse central and southern Italian inland areas (Dessart, 1982). At present it is estimated that there are not more than 80 000 Albanian speakers, all bilingual in Italian and Arbëresh Albanian (Grimes, 2000). It is probable that even this low number of speakers is in fact an overestimation as it is based on the whole population figures of villages labelled as ‘Arbëresh communities’—and does not necessarily correlate with the actual number of speakers in these communities. It can be estimated in the village of Ginestra, for example, that today only 15–20% of the population can

actually actively communicate using their Arbëresh Albanian language.

Arbëresh Albanian belongs to the Tosk Albanian subgroup of Albanian, which represents the only surviving language from the ancient Paleo-Balkan group (Illyrian, Messapic and Thracian) of the Indo-European family (Grimes, 2000). In the *Redbook of the Endangered Languages* (UNESCO) Arbëresh Albanian has been classified as an ‘endangered language’ (Salminen, 1999) and in December 1999, the Arbëreshë have obtained—together with 11 other non-Italian speaking groups—the official recognition as a ‘historical ethnic minority’ from the Italian Parliament. This should ensure a future for their language in the local schools and should also give the people the legal right to use their idiom in official acts of administration and in the sustainment of cultural initiatives dealing with the defence of their heritage (Gazzetta Ufficiale della Repubblica Italiana, 1999).

The present study was carried out in the northern part of the Lucania (also named Basilicata) Region (southern Italy), within an area dominated by a former volcano: the Monte Vulture. This territory is characterised by a few villages sustained primarily by pastoralism and agriculture and, recently, by a car factory in the nearby centre of Melfi. The countryside is dotted with Turkey oak (*Quercus cerris*) in its secondary forests, cultivated olive (*Olea europaea*) groves and vineyards of a local variety of vine, giving the name to the local wine (*Vitis vinifera* var. Aglianico). Since the 1970s, the cultivation of durum wheat (*Triticum durum*) has come to be more and more important, and the extension of wheat fields grown as a cash crop has been significantly increased.

The Arbëreshë arrived in the Vulture area during an immigration flow in the second half of the 15th Century. Today three Arbëresh villages survive: Ginestra (whose inhabitants are called in Arbëresh ‘Zhurian’), Barile (in Arbëresh ‘Barilli’), and Maschito (Arbëresh ‘Mashqiti’), with ca. 700, 3000 and 1800 inhabitants, respectively. They are quite isolated from most of the other Arbëresh communities concentrated in Calabria and Sicily as well as from the other few Albanian ethnic isles in southern Lucania, Apulia, Campania, Molise and Abruzzo.

In Ginestra and Maschito a very distinct cultural gap exists between age generations and today only the oldest members of the population are able to actively speak Arbëresh Albanian. The majority of the mid-aged (35–55 years) population can recall some words and basic customs of their Arbëresh history, but do not incorporate these facets of traditional life into their present daily life. ‘Modernisation’, i.e. conformity to a more mainstream Italian culture, is marked among the younger generation (35 years and younger). This group, for the most part, has abandoned the traditional agro-pastoralist way of life as a principal source of income and is sustained instead primarily by labour in factories. In

Barile, the heritage of this language is not yet lost and at the present time a few members of this youngest generation speak Arbëresh.

## 2.2. The field study

The field work was conducted in Ginestra, Maschito and Barile (Vulture area, Potenza Province, Lucania Region, Fig. 1) during the periods April–June 2000 and March–July 2001, and during 3 other weeks in August and November 2000.

Ethnobotanical information was collected using semi-structured and structured interviews with 68 persons, who still retain traditional environmental knowledge. Initial data gathering methods during the first 4 weeks of the field study involved observation and participation in respondents' activities. Participant observation is a data collection technique that requires the researcher to be present at, involved in, and recording the routine daily activities with people in the field. Interviews were carried out with individuals, and also with groups. In group interviews, informants were encouraged to express their individual opinions.

In the first phase of the field study, people were asked to freely list all food plants they use (or had used in the past). Most of the interviewees (62) were more than 50 years old, and belong mainly to families which still have a strong connection with traditional agricultural activities. More specific information was recorded later only in the village of Ginestra by using structured interviews and by filling in a specifically developed questionnaire. People were asked to precisely describe the processing and cooking of each folk taxon they had mentioned. During the interviews several fresh plants specimens or dried samples stocked in a transportable field herbarium were shown to the interviewees. If a plant was mentioned as a local food and there were no samples of it available in the house, the interviewee was asked to show us the named species around the village. In a few cases, the gathering activities of the food greens was shared by the field researchers and the locals. Special attention was paid to food plant preparations, which are perceived to, or have, a medicinal character. Cooking activity was observed as frequently as possible, but people were also interviewed in detail about specific

techniques. A standard series of queries (What kind of thing is  $x$ ? Is  $x$  a kind of  $y$ ? Are  $x$  and  $y$  the same?) was used for analysing the Arbëresh classification according to the ethnotaxonomical references (Berlin, 1992; D'Andrade, 1995). More than 60 h of tape records are deposited at the authors' address.

Additionally, a study on taste perception of the non-domesticated greens was carried out in Ginestra. For the most commonly used edible plants, people were asked to classify taste sensations and describe them. Each botanical species recognised by the villagers to be used for food was collected and identified; nomenclature follows standard botanical works (Pignatti's 'Flora d'Italia', 1982 (Pignatti, 1982), for non-cultivated species; Cetto, 1987; Gerhardt, 1997, for mushrooms; Franke, 1997; Rubatzky and Yamaguchi, 1997; and the *Multilingual Multiscript Plant Name Database*, University of Melbourne, 2000, for cultivated species). Voucher specimens of all the non-domesticated greens and most uncommon cultivated food botanicals were collected and are deposited at the Herbarium of the Centre for Pharmacognosy and Phytotherapy of the School of Pharmacy, University of London, UK. Specimens of very common wild fruits and cultivated plants were not collected.

## 3. Results and discussion

### 3.1. Botanicals traditionally consumed by the Arbëreshë as food

Cultivated and non-cultivated vegetables gathered by the Arbëreshë are reported in Table 1. This table does not include food species which have been introduced only in the last decades and which do not represent traditional food resources in the local gastronomy (as for example egg plant, *Solanum melangena*). In contrast to other ethnobotanical field studies carried out in the Mediterranean (Ertug, 2000; Tardio-Pato et al., 2001), we did not consider herbs used in hot beverages (decoctions) as food. Arbëreshë claim in fact for these species health benefiting effects and they are than to be classified as medicinal plants. In other words, along the *food–medicine* continuum, such plants are rather close to the 'medicinal' side: this is the case especially of decoctions of aerial parts of *Malva sylvestris*, flowering tops of *Matricaria recutita*, or of pseudofruits of *Ficus carica* and leaves of *Laurus nobilis*.

In Table 1 we also report on the ecological characteristics of the food plants: if the species are gathered from the wild (W), cultivated (C), semi-domesticated (SD), or reverted to a non-domesticated state (RW). We classified as cultivated, those species which are according to Berlin's definition—'deliberately planted and managed by constant and direct intervention' (Berlin, 1992).

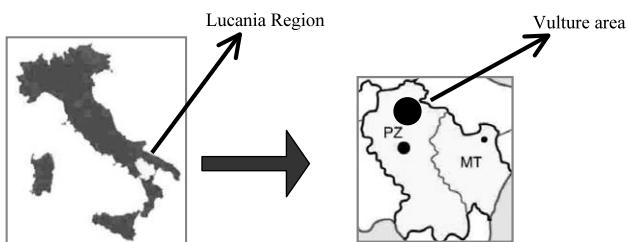


Fig. 1. Geographical location of the field research area.

Table 1  
Food species cultivated and/or gathered by the Arbëreshë

Botanical taxon	Botanical family	Voucher specimen number	Arbëresh phytonym	Cultivation status	Quotation index	Part(s) used	Traditional gastronomic use(s)	Other popular use(s)
<i>Allium ampeloprasum</i> L.	Liliaceae	SIT112	Qepë salvaç Purrax <sup>G</sup>	W	*	bu	R/C condiment	
<i>A. cepa</i> L.	Liliaceae	–	Qepë	C	+++	bu, ap	R/C condiment	me (haemostatic: external applications) mf <sup>#</sup>
<i>A. porrum</i> L.	Liliaceae	–	Presh	C	++	ap	R/C condiment	–
<i>A. sativus</i> L.	Liliaceae	–	Hurdhër <sup>B,G</sup> Hudhër <sup>M</sup>	C	+++	bu	C condiment	me (anti-helminthic: cold macerate; vulnerary: application of the roasted bulbs over ashes) mf <sup>#</sup>
<i>Amaranthus retroflexus</i> L.	Amaranthaceae	SIT098	Nen	W	+	le	C boiled and fried	–
<i>Apium graveolens</i> L.	Apiaceae	–	Aç	C	++	ap	C condiment	–
<i>A. nodiflorum</i> (L.) Lag.	Apiaceae	SIT030	Shkafone <sup>B</sup> Shërpër (ta ëmbël) <sup>G</sup> Thundërë <sup>G</sup>	W	+	ap	R salads/C boiled and fried	–
<i>Asparagus acutifolius</i> L.	Liliaceae	SIT029	Sparengjë <sup>M</sup> Sparenj <sup>B</sup> Sparën <sup>G</sup>	W	++	sh	C boiled, then fried with eggs	–
<i>Avena sativa</i> L.	Gramineae	–	Dërhërë	C	*	se	C flour (bread special)	me (against sore throats: decoctions; roborant for children: cold macerate)
<i>Beta vulgaris</i> L.	Chenopodiaceae	SIT044	Seskul	C; RW	++	ap	C boiled and fried	–
<i>Borago officinalis</i> L.	Boraginaceae	–	Vërajnë	W	++	le	C boiled and/or fried, special soup with beans ( <i>vërajnë e fazuljë</i> ) <sup>M</sup>	me (post-partum depurative: decoctions) mf <sup>#</sup>
<i>Brassica oleracea</i> L. ssp. <i>oleracea</i>	Brassicaceae	–	Kaul	C	++	ap	C boiled	me (purgative: blister [st])
<i>B. oleracea</i> L. ssp. <i>oleracea</i> convar. <i>acephala</i> (DC.) Alef.	Brassicaceae	–	Verxa	C	++	ap	C boiled	–
<i>B. rapa</i> L. ssp. <i>rapa</i> (DC.) Metzg. (Group Ruvo Bailey) [syn.: <i>B. rapa</i> L. Broccoletto Group]	Brassicaceae	SIT099	Cim de rrapë	C; RW	+++	ft	C boiled and fried	–
<i>B. rapa</i> L. ssp. <i>rapifera</i> Bailey (Group Rapifera) [ <i>B. rapa</i> Rapa Group]	Brassicaceae	–	Rrapë	C	+	ro	C boiled and/or fried	–
<i>Calamintha sylvatica</i> Bromf.	Lamiaceae	SIT027	Mëndrast <sup>G</sup>	W	*	le	C condiment	–
<i>Cantharellus cibarius</i> Fr.	Cantharellaceae	SIT040	Këpurdrë	W	+	wf	C fried	–
<i>Capsella bursa-pastoris</i> (L.) Medicus	Brassicaceae	SIT026	Tripë di viq <sup>G</sup> Luljë Shën	W	+	wh	C boiled and fried	–
<i>Capsicum annuum</i> L.	Solanaceae	SIT025	Mëdkaniq <sup>G</sup> Papëdin (dë)	C	+++	fr	C dried, then fried	–
<i>C. longum</i> DC. (syn.: <i>C. annuum</i> var. <i>acuminatum</i> Fingerh.)	Solanaceae	–	Papëdin-j (-dë) (ta fortë)	C	+++	fr	R/C condiment/D condiment for the home made sauxiç (sausage)	mf <sup>#</sup>
<i>Castanea sativa</i> Mill.	Fagaceae	–	Kështenj	C, RW	+	fr	C boiled, cakes	fu (wo)
<i>Centaurea calcitrata</i> L.	Asteraceae	SIT023	Drizë	W	+	wh	C boiled and fried	–
<i>Chenopodium album</i> L.	Chenopodiaceae	SIT022	Ljabot	W	+	le	C boiled and fried	–

Table 1 (Continued)

Botanical taxon	Botanical family	Voucher specimen number	Arbëresh phytonym	Cultivation status	Quotation index	Part(s) used	Traditional gastronomic use(s)	Other popular use(s)
<i>Chondrilla juncea</i> L.	Asteraceae	SIT021	Gjumës <sup>B,M</sup> Ngjumës <sup>G</sup>	W	+	wh, sh	R snack, salads/C boiled and fried	–
<i>Cicer arietinum</i> L.	Fabaceae	–	Qiqër	C	++	se	D/C boiled or roasted; flour (mixed with wheat); boiled with grape juice ( <i>mër kot</i> ) at All Souls' Day (1st November) <sup>M</sup>	re; ri
<i>Cichorium endivia</i> L.	Asteraceae	–	Shkarol	C	++	le	R salads	–
<i>C. intybus</i> L.	Asteraceae	SIT020	Çikour	W	+++	wh	C boiled and fried; traditionally with fava beans ( <i>çikour ma bathë</i> )	me (depurative: decoction) mf <sup>#</sup>
<i>C. intybus</i> L. Catalogna Group	Asteraceae	–	Çikour (katalonj) Katalonj	C	+++	ap	C boiled and fried; traditionally with fava beans ( <i>çikour ma bathë</i> )	mf <sup>#</sup>
<i>Citrus sinensis</i> (L.) Osbeck	Rutaceae	–	Anarenx	C	+++	fr	R	–
<i>C. limon</i> (L.) Burm.	Rutaceae	–	Lëmon	C	+++	fr	R condiment	–
<i>Clematis vitalba</i> L.	Ranuncolaceae	SIT019	Kurpër	W	+	sh	C boiled and fried (with bacon <sup>G</sup> )	ba gc (st)
<i>Cornus mas</i> L.	Cornaceae	–	Thanë	W	*	fr	R snack	–
<i>Corylus avellana</i> L.	Betulaceae	–	Nuçeljë	W	+	se	R/D	gc (fr)
<i>Crataegus monogyna</i> Jacq.	Rosaceae	–	Çerazedë <sup>B,G</sup> Spina purç <sup>M</sup>	W	*	fr	R snack	gc (fr)
<i>Crepis vesicaria</i> L..	Asteraceae	SIT018	Maroljë <sup>G</sup> Marosk <sup>G</sup> Liakra spertë <sup>M</sup>	W	+	wh	C boiled and fried	fo
<i>Cucumis sativus</i> L.	Cucurbitaceae	–	Çitruljë	C	+	fr	R salads	–
<i>Cucurbita maxima</i> Duch.	Cucurbitaceae	–	Çim kunguljë (sh) Kunguljë (fr)	C	+ (sh)+ (fr)	sh fr	C boiled, then fried with eggs (sh) C (fr)	–
<i>C. pepo</i> L.	Cucurbitaceae	–	Çim kukuced (sh) Ku- koçed (fr)	C	+++(sh) ++(fr)	sh fr	C boiled, then fried/C fried	–
<i>Cydonia oblonga</i> L.	Rosaceae	–	Fëtunjë <sup>M</sup> Këtunjë	C; RW	+	fr	C jams; roasted	–
<i>Cynara cardunculus</i> ssp. <i>sco-</i> <i>lymus</i> (L.) Hayek	Asteraceae	–	Skarçof Skarçofuljë	C; RW	++ (re)/+ (st)	re, st	C boiled and fried in olive (re) / C boiled (st)	me (digestive: decoction)
<i>Daucus carota</i> L.	Apiaceae	–	Karot Pastënak	C	+	ro	C boiled	–
<i>Diospyros kaki</i> L.	Ebenaceae	–	Kakis	C	+	fr	R	–
<i>Diplotaxis tenuifolia</i> (L.) DC.	Brassicaceae	SIT016	Rukol (salvaç)	W	++	le	R salads	–
<i>Eruca sativa</i> Miller	Brassicaceae	SIT015	Rukol	C; RW	+++	le	R salads	–
<i>Eryobotria japonica</i> (Thunb.) Lindley	Ebenaceae	–	Nespubl a Çeppon	C	+	fr	R	–
<i>Ficus carica</i> L.	Moraceae	–	Fik	C; RW	+++	fr	R dried	me (against sore throats: decoction)
<i>Foeniculum vulgare</i> ssp. <i>pi-</i> <i>peritum</i> (Ucria) Coutinho	Apiaceae	SIT014	Fënoq (salvaç) <sup>G</sup> Mbraj- në <sup>B</sup> Mërajnë <sup>M</sup>	W	+++	wh, le	R salads / C boiled, then a special timbale ( <i>verdhët</i> ) <sup>M</sup> ;	–
<i>F. vulgare</i> ssp. <i>vulgare</i> L.	Apiaceae	–	Fënoq (ta ëmbël) <sup>G</sup> Mbrajnë <sup>B</sup> Mërajnë <sup>M</sup>	C	++	fr	D condiment for the home made sausage ( <i>sauxiç</i> ) and biscuits ( <i>taralli</i> )	–

Table 1 (Continued)

Botanical taxon	Botanical family	Voucher specimen number	Arbëresh phytonym	Cultivation status	Quotation index	Part(s) used	Traditional gastronomic use(s)	Other popular use(s)
<i>Fragaria vesca</i> L.	Rosaceae	–	Fraulja	C; W	+	fr	R	–
<i>Hordeum vulgare</i> L.	Gramineae	–	Eljbë	C	*	se	C bread (flour)	me (against sore throats: decoction); bechic: fumigation by burning seeds on hot coke)
<i>Humulus lupulus</i> L.	Cannabaceae	SIT013	Sparënx salvaç <sup>G</sup>	W	*	sh	C boiled, then fried with eggs <sup>G</sup>	–
<i>Hypochoeris radicata</i> L.	Asteraceae	SIT111	Çikour salvaç	W	*	wh	C boiled and fried	–
<i>Juglans regia</i> L.	Juglandaceae	–	Harrë	C	++	se	R liqueur / D snack	co (hair dye: decoction of le and fr) ht (insect repellent)
<i>Lactuca sativa</i> L.	Asteraceae	SIT067	Nxalat	C	+++	le	R salads	–
<i>Lactuca serriola</i> L.	Asteraceae	SIT067	Laktuk	W	*	wh	R salads	–
<i>Lathyrus sativus</i> L.	Fabaceae	SIT012	Çiçerkjë <sup>B</sup> Grosh <sup>G,M</sup>	C	+	se	D/C boiled; boiled with grape juice ( <i>mër kot</i> ) at All Souls' Day (1st November) <sup>M</sup>	re (se; sh)
<i>Laurus nobilis</i> L.	Lauraceae	–	Laudhë <sup>G,M</sup> Laurë <sup>B</sup>	SD	+	le	C condiment	me (digestive: decoction)
<i>Lens culinaris</i> L.	Fabaceae	–	Mikuljë Thjërë <sup>M</sup>	C	++	se	D/C boiled; boiled with grape juice ( <i>mër kot</i> ) at All Souls' Day (1st November) <sup>M</sup>	re (se <sup>M</sup> ; sh)
<i>Leopoldia comosa</i> (L.) Parl. (syn. <i>Muscaria comosum</i> (L.) Mill.)	Liliaceae	–	Çepuljin (ta kuqë)	W; SD	+++	bu	C (after being cut and macerated in cold water overnight) fried/P	mf <sup>#</sup>
<i>Lupinus albus</i> L.	Fabaceae	–	Lupin Vulupin <sup>M</sup>	C	*	se	C boiled	fo mf <sup>#</sup> ri
<i>Lycium europaeum</i> L.	Solanaceae	SIT034	Drizë Krisht, Spinë dë Krisht <sup>M</sup>	W	+	sh	C boiled and fried	re (st) ri
<i>Lycopersicum esculentum</i> Miller	Solanaceae	–	Pëmbëdour Pomodor	C	+++	fr	C	me (duretic; decoction of the le)
<i>Malus domestica</i> Borkh.	Rosaceae	–	Mohë <sup>B,G</sup> Mollë <sup>G</sup>	C	+++	fr	R/C	me (bechic: decoction); mf <sup>#</sup> fu (wo)
<i>M. sylvestris</i> Mill.	Rosaceae	SIT110	Lemonxhed	W	*	fr	C	–
<i>Malva sylvestris</i> L.	Malvaceae	SIT120	Mëllagë <sup>B,G</sup> Mëhagë <sup>M</sup>	W	*	le	C boiled in soups	mf <sup>#</sup>
<i>Mentha spicata</i> L.	Lamiaceae	–	Mëndërs	C	+	le	R/C condiment	–
<i>Mespilus germanica</i> L.	Rosaceae	–	Nespulë	C; RW	*	fr	R (after natural fermentation)	–
<i>Morus alba</i> L.	Moraceae	–	Çiuc (ta bardhë) <sup>G,M</sup>	C	++	fr	R	–
<i>M. nigra</i> L.	Moraceae	–	Çiuc (ta zëzë) <sup>G</sup> M-ënë (- unë) <sup>B,M</sup>	C	++	fr	R	–
<i>Muscaria atlanticum</i> Boiss. et Reuter	Liliaceae	SIT109	Çepuljin (ta zëzë)	W	*	bu	C boiled and fried	–
<i>M. botryoides</i> (L.) Mill.	Liliaceae	SIT108	Çepuljin (ta bardhë)	W	*	bu	C boiled and fried	–
<i>Nasturtium officinale</i> L.	Brassicaceae	SIT010	Shërpër Shërpër (ta forte)	W	+	le	R salads/C boiled and fried	–
<i>Ocimum basilicum</i> L.	Lamiaceae	–	Valzikoujë <sup>B,G</sup> Fasikoj <sup>M</sup>	C	+++	le	C	–
<i>Olea europaea</i> L.	Oleaceae	SIT087	Ulihj <sup>B,G</sup> (wp) Ulinjë <sup>B,G</sup>	C	+++	fr	D/C/P/oil	me (oil, anti-otitis: instilled in the ears;purgative: blister) re (le) fu (wo)
			(fr) Vëri-hj (-nj) <sup>M</sup> (fr)					

Table 1 (Continued)

Botanical taxon	Botanical family	Voucher specimen number	Arbëresh phytonym	Cultivation status	Quotation index	Part(s) used	Traditional gastronomic use(s)	Other popular use(s)
<i>Origanum heracleoticum</i> L.	Lamiaceae	SIT009	Rigan	W	++	ft	C condiment	C condiment
<i>Papaver rhoeas</i> L.	Papaveraceae	SIT008	Luljëkuq	W	+++	wh	C boiled and fried; special soup with beans ( <i>luljëkuq ma fazuljë</i> )	me (sedative: decoction of fl) cg (fr)
<i>Petroselinum sativum</i> Hoffm.	Apiaceae	—	Pëtérzej	C	+++	le	R/C condiment	—
<i>Phaseolus vulgaris</i> L.	Fabaceae	—	Fazuljë	C	+++	se	D/C boiled	re (sh)
<i>Pholiota aegerita</i> Brig.	Strophariaceae	SIT007	Këpurdrë Këpurdrë ta qupë	W	+	ca	C fried	—
<i>Picris echiooides</i> L.	Asteraceae	SIT006	Sfruzhën <sup>B</sup> Spruzhën <sup>G,M</sup>	W	+	wh	C boiled and fried	—
<i>Pisum sativum</i> L.	Fabaceae	—	Rripulja	C	++	se	D/C boiled	—
<i>Plantago serraria</i> L.	Plantaginaceae	SIT035	Çikour salvaç <sup>G</sup>	W	+	wh	C boiled and fried <sup>G</sup>	re (sh)
<i>Pleurotus eryngii</i> (De Cand.: Fr.) Quél	Polyporaceae	SIT100	Këpurdrë (K-[G]-ardunxheljë)	W	+	wf	C fried	—
<i>Portulaca oleracea</i> L.	Portulaceaceae	SIT107	Burdulak <sup>M</sup> Përqak	W	*	le	R/C	—
<i>Prunus armeniaca</i> L.	Rosaceae	—	Vernakok	C	++	fr	R	—
<i>P. avium</i> L.	Rosaceae	—	Gjirshej	C	+++	fr	R/C jams	fu (wo)
<i>P. cerasus</i> L.	Rosaceae	—	Marejn	C	++	fr	R/C jams	—
<i>P. cerasus</i> L. ssp. <i>acida</i>	Rosaceae	—	Marejneljë	C; RW	+	fr	R spirits	—
Aschers et Graebn.								
<i>P. domestica</i> L.	Rosaceae	—	Kumbule <sup>G</sup> Pruma <sup>B,M</sup>	C	++	fr	R/C	fu (wo)
<i>P. dulcis</i> (Miller) D.A. Webb.	Rosaceae	—	Mendhjë <sup>M</sup> Mendolja <sup>B,G</sup>	C; RW	+++	uf le	R snack R/D	me (against intestinal pains: cold macerate of le); fu (wo)
<i>P. persica</i> (L.) Batsch	Rosaceae	—	Pishk	C	+++	fr	R/C jams	—
<i>P. spinosa</i> L.	Rosaceae	—	Kolumbrinë	W	*	fr	R snack/C jams	—
<i>Punica granatum</i> L.	Punicaceae	—	Sheg	C	+	fr	R; added to boiled wheat and other beans in grape juice ( <i>mër kot</i> ) at All Souls' Day (1st November) <sup>M</sup>	—
<i>Pyrus communis</i> L.	Rosaceae	—	Dardhë	C	+++	fr	R/C jams	mf# fu (wo)
<i>Raphanus sativus</i> L.	Brassicaceae	—	Rafanil	C	+	ro	R	—
<i>Reichardia picroides</i> (L.) Roth	Asteraceae	—	Buk <sup>B</sup> Bukë Ljepër <sup>G,M</sup>	W	+	wh	R salads/C boiled and fried	—
<i>Rosa canina</i> L.	Rosaceae	—	Krimbabith <sup>G</sup>	W	*	fr	R snack	ae
<i>Rosmarinus officinalis</i> L.	Lamiaceae	—	Palmapenda <sup>G</sup> Rosmarin <sup>B,G</sup> Spiganardë <sup>M</sup>	C	++	le	C condiment	re
<i>Rubus ulmifolius</i> Schott.	Rosaceae	—	Ferrë (wp) Mënx (fr) <sup>G</sup> Mënë (fr) <sup>B,M</sup>	W	+	fr	R/C jams	me (diuretic: decoction of le)
<i>Salvia officinalis</i> L.	Lamiaceae	—	Salvë	C	+	le	C condiment	me (against sore throats: decoction)
<i>Scolymus hispanicus</i> L.	Asteraceae	SIT024	Kardunxheljë <sup>B,G</sup> Rë-koljë <sup>M</sup>	W	+++	ls	R salads/C boiled, then a special timbale ( <i>verdhët</i> ) <sup>B,G</sup>	—
<i>Sinapis arvensis</i> L.	Brassicaceae	SIT004	Sënap	W	+++	ap	C boiled and fried; special dish at Christmas Eve mit cooked dried stockfish or anchovies ( <i>sënap e bakala</i> ) <sup>B,M</sup>	—

Table 1 (Continued)

Botanical taxon	Botanical family	Voucher specimen number	Arbëresh phytonym	Cultivation status	Quotation index	Part(s) used	Traditional gastronomic use(s)	Other popular use(s)
<i>S. pubescens</i> L.	Brassicaceae	SIT106	Sënäp	W	+	ap	See <i>S. arvensis</i>	–
<i>Silybum marianum</i> L.	Asteraceae	SIT105	Kardunj <sup>G</sup> Gardonj <sup>M</sup>	W	*	wh	C boiled and fried	–
<i>Sisymbrium officinale</i> (L.) Scop.	Brassicaceae	SIT036	Llapëzan	W	++ +	wh	C boiled and fried	–
<i>Solanum tuberosum</i> L.	Solanaceae	–	Patate <sup>B,G</sup> Patafë <sup>M</sup>	C	++ +	ro	C diverse; bread (mixed with wheat flour)	me (anti-burns: external application of the fresh cut or ground tuber)
<i>Sonchus asper</i> L.	Asteraceae	SIT104	Rrëshed Rrësheljë	W	+	le	R salads/C boiled and fried	me (anti-afta: washing the mouth by a cold macerate)
<i>S. oleraceus</i> L.	Asteraceae	SIT003	Rrëshed Rrësheljë	W	++ +	le	R salads/C boiled and fried	–
<i>Sorbus domestica</i> L.	Rosaceae	–	Va-dhëz (-thëz) <sup>M</sup> Valz <sup>G</sup> Vase <sup>B</sup>	C; RW	+	fr	R (after natural fermentation)	–
<i>Stellaria media</i> (L.) Vill.	Caryophyllaceae	SIT002	Mezhëdënë <sup>G</sup> Mërzhol-jënë <sup>G</sup>	W	*	ap	R salads/C soups	–
<i>Tamus communis</i> L.	Dioscoreaceae	SIT103	Sparënx salvaç <sup>G</sup>	W	*	sh	C boiled, then fried with eggs <sup>G</sup>	–
<i>Taraxacum officinale</i> Weber	Asteraceae	SIT102	Çikour spertë <sup>B,M</sup> Liakra spertë <sup>B,M</sup> Maroljë <sup>G</sup> Marosk <sup>G</sup>	W	*	wh	C boiled and fried	fo
<i>Tordylium apulum</i> L.	Apiaceae	SIT001	Kalkatrinj <sup>B,G</sup> Kalkatrizhënë <sup>G</sup> Karkallidë <sup>M</sup>	W	++	wh	C boiled and fried	fo
<i>Triticum aestivum</i> L.	Graminae	–	Grurë	C	++	se	C bread (flour)	me (against not specified external pains: application of bread dough) re (sh)
<i>T. durum</i> Desf.	Graminae	–	Grurë, Kapela	C	++ +	se	C boiled in grape juice on 1st November ( <i>grurë ma mër kot</i> ) <sup>B,G</sup> ; bread (flour)	re (sh)
<i>Urtica dioica</i> L.	Urticaceae	SIT033	Hënz <sup>G</sup> Hinz <sup>G</sup> Hisër <sup>B</sup> Hith <sup>M</sup>	W	*	le	C boiled, soups	–
<i>Valerianella carinata</i> Loisel	Valerianaceae	SIT101	Nxalata françesk	W	*	wh	R salads	–
<i>Vicia faba</i> L.	Fabaceae	–	Bathë	C	++ +	sh se	R salads R/D/C boiled or roasted; boiled with grape juice ( <i>mër kot</i> ) at All Souls' Day (1st November) <sup>M</sup>	re (se <sup>M</sup> ; sh)
<i>Vitis vinifera</i> L.	Vitaceae	–	Dherejhj (wp) Rush (fr)	C	* ++ +	uf fr	R condiment R/wine/vinegar	mf <sup>#</sup>
<i>Zea mays</i> L.	Graminae	–	Grandinjë <sup>B,G</sup> Garëdin <sup>M</sup>	C	+	se	C pancake ( <i>kukul</i> )	me (purgative: blister [sg])
<i>Ziziphus jujuba</i> Mill.	Rhamnaceae	–	Sheshulë	C	*	fr	R	–

Cultivation Status: C, cultivated; SD, semi-domesticated; RW, reverted to a wild state; W, wild. Quotation frequency (based on the number spontaneously mentioned): \*, no longer used; +, quoted by less than 10% of the informants; ++, quoted by more than 10% and less than 40% of the informants; + + +, quoted by more than 40% of the informants. Part(s) used: ap, aerial part; bu: bulb; ca, caps (mushrooms); fl, flowers; fr, fruits; ft, flowering tops; le, leaves; ls, leaf stalks; ro, root/tuber; se, seeds; sg, stigma; sh, shoots; st, stems; uf, unripe fruits; wf, whole fruiting body (mushrooms); wh, young whorls; wo, wood; wp, whole plant. Traditional gastronomic use(s): C, cooked; D, dried; P, pickled; R, raw. Other popular use(s): ae, aesthetic; at, agricultural technology; ba, basketry; co, cosmetics; feed; fo, folklore; fu, fuel; me, medicinal; gc, games of children; ht, household technology; mf, medicinal food; re, religious; ri, ritual; # details in Table 5. <sup>B</sup> recorded only in Barile; <sup>G</sup> recorded only in Ginestra; <sup>M</sup> recorded only in Maschito.

Wild and semi-domesticated species represent about half of the whole recorded food species. Among wild botanicals, non-cultivated vegetables represent the majority of the species used and they are locally termed *liakra*. Green aerial parts and young whorls are the most commonly gathered plant parts and they are mostly consumed after being cooked (Pieroni and Heinrich, 2002). The quotation indexes reported in Table 1 are based on the spontaneous quotation of a given specific folk taxon by interviewees.

Among the cultivated crops, *Lathyrus sativus* (grass-peas) is of particular interest. This arachic crop represents-together with chick peas (*Cicer arietinum*) and fava beans (*Vicia faba*), the most popular staple, although today only very few locals still harvest grass-peas. Until 20–30 years ago semolina flour (*Triticum durum*) was prepared used as ingredient in the local cuisine only for holiday or feast days. For the daily dietary needs, maize (*Zea mays*) flour, which was used to bake a type of flat-bread (*kukulë*), had been used.

Two unusual uses of cultivated crops are represented by sweet pepper (*Capsicum annuum*) fruits, which are still harvested and dried during the summer, and then crisply fried in olive oil and eaten all over the year as a main dish with semolina bread; and by young shoots of pumpkin (*Cucurbita pepo*), which are harvested in May, lightly boiled, fried with garlic and olive oil, and then consumed with home-made noodles.

Non-cultivated food plants represent an important part of the daily diet during the spring season and they are mainly consumed in mixtures. Only very few *liakra* are traditionally eaten raw. The most common preparation is to gather and lightly boil them, then fry them in olive oil and garlic (*Allium sativum*), sometimes also adding a few hot chillies (*Capsicum longum*). The cooked greens are then added to previously boiled noodles as a kind of green vegetable sauce. In some cases, these weedy greens are directly boiled with the noodles, and the entire preparation is fried in olive oil with garlic. Noodles with *liakra* are often considered a main dish. In some other cases, the wild species are cooked and consumed with bean soup (as in the traditional preparation *luljëkuq e fazuljë*, english: ‘corn poppy leaves [*Papaver rhoeas*] and beans’) or mashed fava beans (as in the dish *bathë e çikour*, ‘fava beans and wild cichory [*Cichorium intybus*]’).

*Liakra* also plays an important role in special meals served only on religious holidays. During the Easter holiday, for example, a special timbale (*verdhët*) is prepared with eggs, lamb meat, and special gathered greens. The type of greens used for this dish varies between villages: in Maschito, the young aerial parts of *Foeniculum vulgare* spp. *piperitum* are cooked, whereas in Ginestra and Barile, the leaf stalks of *Scolymus hispanicus* are used. The same preparation is also popular in the nearby Italian villages (Rionero, Ripa-

candida, Venosa), even though often no vegetables are included in the recipe. In this case it could be that this is probably a traditional Arbëresh preparation (*verdhët* from the Tosk Albanian *verdhë*, in english yellow, maybe due the considerable amount of eggs employed in this feast dish?) that has been adopted by the surrounding Italian communities.

We compared our data with the most complete databases of edible plants available (Hedrick, 1972; Couplan, 1989; Facciola, 1998; Plants for a Future Database, 2000) and with all of the field ethnobotanical studies that have considered non-domesticated food botanicals and were conducted in Italy during the last 50 years (Galt and Galt, 1978; Bellomaria, 1982; Guarnera, 1981, 1982, 1990, 1994; Corsi and Pagni, 1979; Corsi et al., 1981; Coassini Lokar and Poldini, 1988; Camarda, 1990; Paoletti et al., 1995; Novani et al., 1997; Bisio and Minuto, 1999; Pieroni, 1999; Lentini, 2000; Piras, 2000). Food utilisation of the young whorls of *Centaurea calcitrapa*, leaves of *Amaranthus retroflexus*, and of the shoots of *Lycium europaeum* have never been reported in previous surveys in the Italian Peninsula, while dietary utilisation of the whorls of the first species has been recorded recently in northern Sardinia and in Sicily (Camarda, 1990; Lentini, 2000; Piras, 2000). *Lycium europaeum* has been quoted as a potential edible (Plants for a Future Database, 2000), but no records of a specific food use of its green parts have been described before. Dried stems of this taxon also play a specific religious role in the area (Heinrich and Pieroni, 2001). Young aerial parts of *Amaranthus retroflexus* are well known as food sources in other continents (Szczawinski and Turner, 1988); nevertheless they are still used very rarely in the Mediterranean.

The use of the bulbs of *Leopoldia comosa* (syn.: *Muscari comosum*) has a long tradition in Greece, Near East, and Eastern Mediterranean (Mattioli, 1568; Forbes, 1976b; Lietava, 1992). The tradition of its specific use as a food has been recorded in recent ethnobotanical surveys in Sardinia, southern Italy, and central Turkey (Camarda, 1990; Casoria et al., 1999; Ertug, 2000; Piras, 2000). At present, however, fewer and fewer people gather these bulbs from the wild in the Vulture area, and instead they are often bought from the local markets, where they arrive imported from northern Africa.

A considerable number of botanical taxa gathered by the Arbëreshë in Ginestra, including *Chondrilla juncea*, *Centaurea calcitrapa*, and *Tordylium apulum* have not yet been well investigated phytochemically and phytopharmacologically (Terencio et al., 1993; Marco et al., 1992; Kofinas et al., 1998, respectively). In other cases (*Scolymus hispanicus*, *Apium nodiflorum*, *Reichardia picroides*) the species has never been recently investigated.

Comparing the Arbëresh ethnobotany with that of the Italian communities living the same area, we carried out

a preliminary survey on the gathering traditions of non-cultivated food botanicals in Ripacandida (Italian centre of the Vulture area, 2 km far from Ginestra). A few weedy vegetables consumed among the Arbëreshë are used also in Ripacandida, even though some of them (such as *Chondrilla*, *Amaranthus*, *Papaver* ssp., which interestingly are also all named in Arbëresh by original Albanian phytonyms) seem to play a much more important cultural role among the Arbëreshë.

### 3.2. Ethnotaxonomy of the 'liakra'

Generally, Arbëresh phytonyms of the commonly used, non-cultivated botanical foods (Table 2) are derived from the Italian (Penzig, 1924) or original Tosk Albanian (Sejdiu, 1984; Paparisto et al., 1988) languages. Unfortunately, the only written Arbëresh lexicon (Giordano, 1963) is based on a limited empirical data, mostly deriving from Arbëresh spoken by the communities in Calabria. Moreover, Tosk Albanian has represented for all the Albanian languages of the Italian 'Diaspora' a kind of *Dachsprache*, that is why it has been considered as a sort of 'high language' (Trumper et al., 2002). It is estimated that about 45% of the written

Arbëresh heritage is represented by Tosk Albanian words, while 25% of the terms are characteristic of each single Arbëresh village and 15% are derived from Italian.

In the Arbëreshë communities where we conducted our field study, generally only elderly over 60 years were generally able to name useful plants in Arbëresh and to recognise them. This loss of language is strongly linked with the loss of traditional culture and of TEK. As Mühlhäusler recently stated (Mühlhäusler, 2001), there is 'an important aspect to any type of management: one can manage only what one knows; and a corollary: that one knows that for which one has a linguistic expression'.

By interviewing specifically on folk nomenclature and identification of useful plants several young locals, we observed also that the loss of TEK and loss of language begin with people aged 50 and that much more effects the women community. We noted also that lost of traditional environmental knowledge and lost of language are not completely coupled: a few interviewees of the middle generation seem to be often able to remember Arbëreshë names of plants, but not to identify them or to explain their traditional use.

Table 2  
Examples of correspondence between folk generic names and scientific names for the most quoted wild food botanicals in Ginestra

Code	Arbëresh folk generic	Origin of the folk generic name	Corresponding botanical taxon (taxa)
<i>One-to-one correspondence</i>			
Buk	Bukë Ljepër	Albanian	<i>Reichardia picroides</i>
Kal	Kalkatrinj	Italian	<i>Tordylium apulum</i>
Kar	Kardunxheljë	Italian	<i>Scolymus hispanicus</i>
Kur	Kurpër	Albanian	<i>Clematis vitalba</i>
Lja	Ljabot	Albanian	<i>Chenopodium album</i>
Lla	Llapëzan	Italian	<i>Sisymbrium officinale</i>
Lul	Luljëkuq	Albanian	<i>Papaver rhoes</i>
Mez	Mezhëdënë	Italian	<i>Stellaria media</i>
Nen	Nen	Albanian	<i>Amaranthus retroflexus</i>
Ngj	Ngjumës	Albanian	<i>Chondrilla juncea</i>
Rig	Rigan	Albanian	<i>Origanum heracleoticum</i>
Shë	Shërpër	Albanian	<i>Nasturtium officinale</i> <sup>a</sup>
Spr	Spruzhën	Italian	<i>Picris echioides</i>
Thu	Thundërë	Albanian	<i>Apium nodiflorum</i> <sup>a</sup>
Tri	Tripë de viq	Italian	<i>Capsella bursa-pastoris</i>
Vër	Vërrajnë	Italian	<i>Borago officinalis</i>
<i>Under-differentiation</i>			
Çik	Çikour	Italian	<i>Cichorium intybus</i> , <i>Hypochoeris radicata</i> , <i>Plantago serraria</i>
Çëp	Çëpuljin	Italian	<i>Muscaria atlanticum</i> , <i>M. botryoides</i> , <i>Leopoldia comosa</i>
Dri	Drizë	Albanian	<i>Centaurea calcitrapa</i> , <i>Lycium europaeum</i>
Fën	Fënoq	Italian	<i>Foeniculum vulgare</i> ssp. <i>vulgare</i> , <i>F. vulgare</i> ssp. <i>piperitum</i>
Hën	Hënz	Albanian	<i>Urtica</i> sp. pl.
Këp	Këpurdrë	Albanian	<i>Cantharellus cybarius</i> , <i>Pholiota aegerita</i> , <i>Pleurotus eryngii</i>
Mar	Maroljë	Italian	<i>Crepis vesicaria</i> , <i>Taraxacum officinale</i>
Rrë	Rrëshed	Albanian	<i>Sonchus asper</i> , <i>S. oleraceus</i>
Ruk	Rukol	Albanian	<i>Diplotaxis tenuifolia</i> , <i>Eruca sativa</i>
Sën	Sënap	Albanian	<i>Sinapis arvensis</i> , <i>S. pubescens</i>
Spa	Sparënx	Albanian	<i>Asparagus acutifolius</i> , <i>Humulus lupulus</i> , <i>Tamus communis</i>

<sup>a</sup> By a few informants they are considered belonging to the same generic (*shërpër*); in this case they should also represent a case of under-differentiation

This peculiarity have similarities with what was recently pointed out by a survey on the evolution and devolution of biological terminology about trees in the English language, where knowledge of plant names on the specific level seem to persist more than that on life and generic levels. This lingering of labels in the languages could be explained by the fact that terms may represent a sort of ‘loose categories’, decoupled from their actual referents (Wolff and Medin, 2001).

Cultivated plants introduced from the New World, including such genera as *Capiscum*, *Lycopersicum*, *Phaseolus*, *Solanum*, and *Zea*, arrived into Albania when the Arbëreshë maybe have already left. In Southern Italy, for example, the maize arrive before 1560, a few years before that the Albanians immigrated to those regions. That is why these species are generally named with Italianisms (Pieroni and Heinrich, 2002). There are also a few differences between the phytonyms used in the three studied Arbëresh centres, and in a few cases original Albanian folk names survive only in one of the three village, while they have been italianized in the other ones. In particular, the folk name for the very popular chillies (*Capsicum longum*) is *mëdkaniq*, which means ‘little American’, and this is the old term which is also used in other areas of Lucania and Apulia to define this ‘new’ ingredient.

Folk classification of plants and mushrooms as recorded by the elderly people of Ginestra is represented by Fig. 2. The Arbëresh recognise four basic life forms (as defined by Berlin, 1992): trees/vines (*arbolë*), flowers (*kuqa* or *fiora*), mushrooms (*këpurdra*), and the life form classified in ethnobiology as ‘grass/herbaceous plants’ or *grerbs* (Brown, 1977), which is represented in Ginestra by a covert category comprised of *liakra* or *bara*, depending on the fact of whether the *grerbs* are

considered edible or not, respectively. All interviewed Arbëresh speakers clearly distinguish between *liakra* (edible weedy non-cultivated vegetables) and *bara* (non-edible grasses and herbs). Ethnolinguists who have field experience among Arbëreshë in Calabria (Trumper et al., 2002), are agree to consider *liakra* and *bara* as intermediate ranks. *Liakra* would represent than a level, which is superordinate towards the generic rank, while *bara* is closer to the ethnotaxonomical level life-form Fig. 3.

The word *liakra* is used by the Arbëreshë as a synonym of ‘leaves’ and surely has an Albanian origin, even though the term does not exist at present in the modern Tosk Albanian language. A similar Albanian term, *lakër*, is, however, still used today in Albania for defining cabbage [*Brassica oleracea*] and black mustard [*B. nigra*] (Sejdiu, 1984). On the other hand, the word *bara* (singular) represent the Tosk Albanian term for ‘grass’.

We have included the *liakra* category in our ethnotaxonomical schema even though ethnobiologists generally tend to exclude functional terms from taxonomies, since these are not kinds of things, but rather objects used in a certain way (Wierzbicka, 1984). On the other hand, in many languages, life forms have a mixture of morphological and functional features (D’Andrade, 1995), as for example in the case of *kayu* among the Samal: *kayu* is a general term used only for trees whose wood is good for cooking, making houses, or canoe hulls (Randall and Hunn, 1984). Moreover, ethnolinguists who have intensively studied the Arbëreshë and Calabro-Lucanian dialects of Calabria through a semantic cognitive perspective, have also pointed out the complexity of the criteria which locals adopt to discriminate between and classify different plants (Madda-

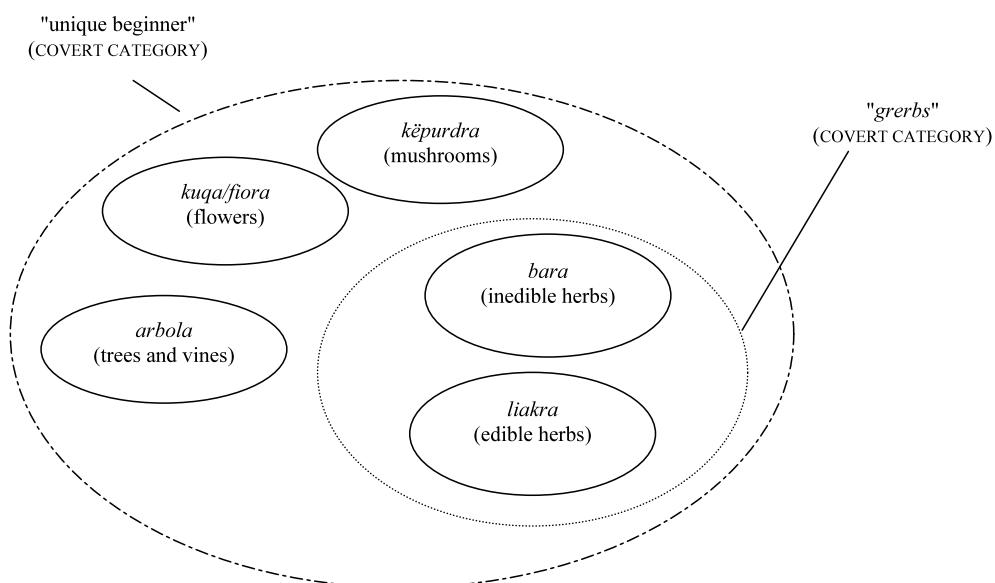


Fig. 2. Representation of the ethnobiological classification of the ‘unique beginner’ plant in Ginestra.

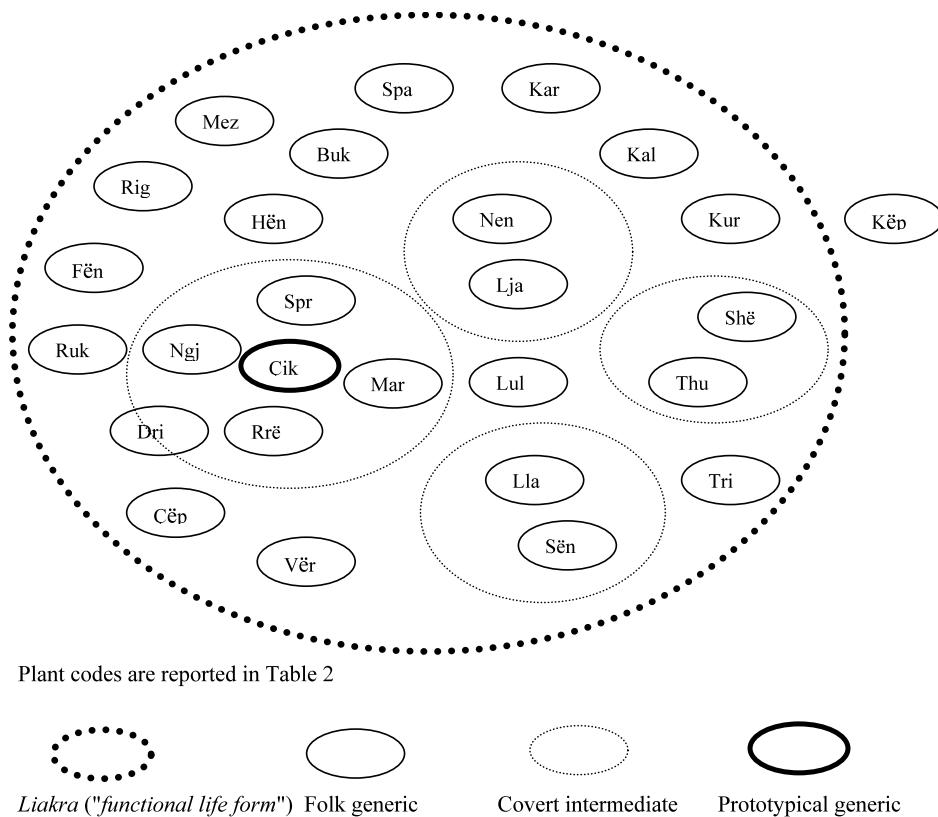


Fig. 3. Schematic representation of the ethnobiological classification of the most used non-cultivated food botanicals in Ginestra.

lon and Belluscio, 1996). Considering this, we consequently use the term functional life form to describe this ethnotaxonomical phenomenon.

The folk classification of the edible *liakra* includes relatively few *folk generics* (as defined by Berlin, 1992) or generic species (as defined by Atran, 1999). Most of the folk generics recorded in Ginestra correspond on a one-to-one basis to scientific species, and several clusters with under-differentiation exist (Berlin et al., 1966) in which a single folk generic term is used to name more than one similar botanical species, sometimes even belonging to different botanical genera and families (Table 2).

Remarkably, there is also an intermediate level between the category *liakra* and that of its generics, and thus represents a covert intermediate category. Among the Arbëreshë of Ginestra, a few recorded generics are included in these well-circumscribed categories: when the respondents were asked to group diverse non-domesticated food greens, they tended to build such subgroups (Fig. 3). Moreover, when asked to list all of the non-domesticated greens that they could think of, they always listed them together in succession, confirming in this way a general finding of cognitive psychology (Bousfield, 1953; Romney, 1989). Some plausible explanations for this phenomenon could be a tendency to group plants by similarities of: (1) morphology (as in the case of *sēnap/llapēzan*, *Sinapis* ssp./

*Sisymbrium officinale*); (2) cultural ecozone of gathering/collection (as in the case *shērpər/thundērē*, *Nasturtium officinale/Amaranthus nodiflorum*); or (3) taste (as in the intermediate grouping diverse bitter non-domesticated greens, where *çikour*, wild *Cichorium intybus*, represents their prototype).

### 3.3. Ethnoecology of the non-domesticated vegetables gathered in Ginestra

Weedy plants are defined as plants which ‘grow entirely or predominantly in situations markedly disturbed by man (without, of course, being a deliberately cultivated plant)’ (Baker, 1965), represent a kind of intermediate between wild and cultivated species and are eco-sustainable nutritional sources (Bye, 1981). The ‘cosmopolitan’ character of weeds is a tribute both to the ubiquity of man’s modification of environmental conditions and his efficacy as an agent of dispersal (Salisbury, 1961).

Under the perspective of ecological evolutionary biology, weeds are ‘species that are introduced intentionally or unintentionally into ecosystems where they have never been before, and cause changes in the structure and function of these ecosystems, [...] are often spread relatively quickly and [...] they may modify the resident community, and in some cases may usurp much of the resources of the habitat’ (Bazzaz, 1986).

Table 3

Ethnoecological characteristics of the most common used wild food botanicals in Ginestra

Botanical taxon	Kind of plant	Ecological classification of the plant	Gatherers	Ecological spaces where the species is generally gathered from	Semi-domestication	Plant sold in local open-air markets
<i>Amaranthus retroflexus</i>	he	we	w	v	—	—
<i>Apium nodiflorum</i>	he	we	w	u	—	—
<i>Asparagus acutifolius</i>	sh	nw	m	p	—	yes
<i>Barago officinalis</i>	he	we	w	v	—	—
<i>Capsella bursa-pastoris</i>	he	we	w	v	—	—
<i>Centaurea calcitrapa</i>	he	we	w	v	—	—
<i>Chenopodium album</i>	he	we	w	v	—	—
<i>Chondrilla juncea</i>	he	we	w	v/d	—	—
<i>Cichorium intybus</i>	he	we	w	d	—	yes
<i>Clematis vitalba</i>	sh	nw	w	g	—	—
<i>Crepis vesicaria</i>	he	we	w	v/d	—	—
<i>Diplotaxis tenuifolia</i>	he	we	w	d	—	—
<i>Foeniculum vulgare</i> ssp. <i>piperitum</i>	he	we	w	v/d	yes	yes
<i>Leopoldia comosa</i>	he	we	m	p/d	yes	yes
<i>Lycium europaeum</i>	sh	nw	w	g	—	—
<i>Nasturtium officinale</i>	he	we	w	u	—	—
<i>Origanum heracleoticum</i>	he	we	m	d	yes	yes
<i>Papaver rhoes</i>	he	we	w	v/d	—	yes
<i>Picris echioides</i>	he	we	w	v	—	yes
<i>Reichardia picroides</i>	he	we	w	v	—	—
<i>Scolymus hispanicus</i>	he	we	m	d	yes	yes
<i>Sinapis arvensis</i>	he	we	w	v	—	yes
<i>Sisymbrium officinale</i>	he	we	w	v	—	—
<i>Sonchus oleraceus</i>	he	we	w	v	—	yes
<i>Tordylium apulum</i>	he	we	w	v/d	—	—

Kind of plant: he, herbaceous plant; sh, shrub. Ecological classification of the plant: nw, non-weed; we, weed. Gatherers: m, men; w, women. Ecological spaces where the species is gathered from: d, *dheju* (around wheat fields); g, *gardhē* (hedgerow); p, *pill* (forest); v, *vrēshē* (vineyards/olive-groves); u: *ndē ujē* (marsh).

Most of the food plants recorded in this study are *grerbs* (herbaceous species), and represent weeds (Table 3).

Although men are responsible for the collection of mushrooms, most other non-domesticated botanicals are collected by women in the *vrēshē* (vineyards/olive-groves) which are normally located close to the village. A very few species are also collected in the hedgerow (*gardhē*). Durum wheat fields, because of the increasing role of durum wheat as cash crop, occupy much of the landscape today, which was once covered by secondary forest (Fig. 4). Generally, it is the men who collect any non-cultivated species from these wheat fields (*dheju*) and remaining secondary forest (*pill*) which are located much further from the village Fig. 5.

For a very few non-domesticated species that play a central role in the local cuisine, such as *Leopoldia comosa*, *Origanum heracleoticum*, and *Scolymus hispanicus*, attempts to semi-domesticate them in the local home gardens have also been observed. Gathering these species is generally very time consuming (because they grow in areas which are far from the village and their natural abundance is limited) and is thus primarily carried out by men. The same male members of the

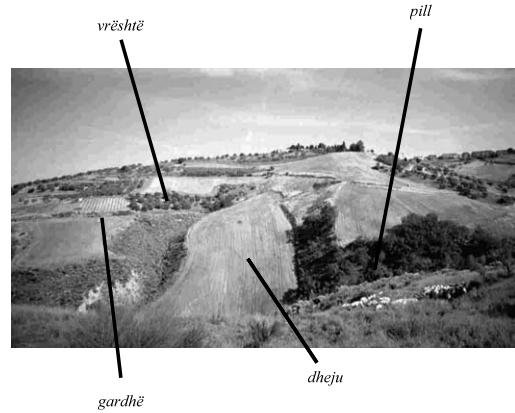


Fig. 4. Ecological spaces where wild food species are generally gathered: d, *dheju* (around wheat fields); g, *gardhē* (hedgerow); p, *pill* (forest); v, *vrēshē* (vineyards/olive-groves).

community often transplant these specimens from the wild to home gardens, which are located close to the house, and manage them there. We also observed that about half of the weedy species were additionally sold in local open-air markets in the nearby (Italian speaking) villages of Rionero and Venosa. This could represent an



Fig. 5. Cooking *liakra* in Ginestra.

interesting starting point for developing new eco-sustainable and profitable activities, such as controlled gathering of non-cultivated herbs and their commercialisation within local or regional economic circuits.

### 3.4. Ethnopharmacological and ethnotoxicological considerations

We also evaluated the period of consumption and the frequency of gastronomic use of *liakra* in Ginestra, the latter parameter by recording the number of times in which a single folk taxon was processed in the local kitchen in each family visited during the period of the field study (Table 4). This frequency of use index thus records the observed frequency of usage and not the spontaneous mentioning of a use, as in Table 1.

In a few cases, quotation frequency and frequency of use of the listed plants have similar values (if comparing data showed in Table 1 and Table 4), but this is not always the case. For example, we also recorded species that presented a high quotation frequency with a low or medium frequency of use: this is most prevalent amongst cases of non-domesticated species that are consumed quite rarely, but with much enthusiasm (such as *Asparagus acutifolius* and *Scolymus hispanicus*). A complete analysis of such cases would require a classification of folk taxa by rank of cultural importance, which needs to take into account much more complex parameters (Pieroni, 2001).

Processing and cooking are complex procedures, ranging from simple washing (in the case the non-domesticated greens that are consumed raw), washing and cooking (Fig. 5), and washing, detoxifying and cooking (Table 4). Most of the non-domesticated greens are simply boiled and then fried in olive oil with garlic and eaten. A process utilised to remove bitter compounds, which also serves to detoxify the food, is applied in the case of *Leopoldia comosa* bulbs and *Clematis vitalba* shoots. The bulbs, which have a very strong bitter taste if eaten raw, are cut and macerated overnight (or even over a period of several days) in cold water before being cooked (fried or pickled). People justify this procedure as an action to ‘decrease the

bitterness’, which is considered too high in the unprocessed bulbs and not, however, as a detoxification procedure. In the case of *Leopoldia*, this operation seems to have a ‘phytochemical’ rationality and likely reaches the double aim of decreasing both the potential toxicity of the bulbs and their bitterness. Known groups of natural products from the species include triterpenes (Adinolfi et al., 1984 and references therein), homoiso-flavanones (Adinolfi et al., 1985), and possibly also polyhydroxylated pyrrolizidine alkaloids (recently found in a related *Muscari* species, Asano et al., 2000). The homoisoflavanones are responsible for the bitter taste of many vegetables (Drewnoswski and Gomez-Carneros, 2000). In the case of *Clematis vitalba* shoots, the detoxification procedure is much simpler: they are simply boiled in a large amount of water and thus detoxified during the normal cooking process. This practice has also been described in central Italy (Corsi and Pagni, 1979; Corsi et al., 1981; Guarnera, 1981, 1990, 1994; Bellomaria, 1982; Guarnera, 1994; Pieroni, 1999) and can be explained ethnotoxicologically by the chemical heat-induced degradation of the vesicant Ranunculaceae’s constituent, protoanemonin.

High concentrations of essential nutrients, such as ascorbic acid and carotenoids, have been isolated in non-domesticated *Amaranthus* and *Chenopodium* ssp. (Guil et al., 1997). Recently, a remarkable flavonol content has been determined in the leaves of four traditional non-domesticated food plants from Crete, which are also used in the Arbëresh cuisine: *Papaver rhoeas*, *Feoniculum vulgare*, *Sonchus oleraceus*, and *Tordylium apulum* (Trichopoulou et al., 2000b).

### 3.5. Plant food as medicines

In contrast to previous field research on non-domesticated edibles in Tuscany (Pieroni, 1999), in the Vulture area only a few weedy vegetables are perceived to have an effect against certain diseases (Table 5). Only a few informants ascribed to all bitter foods a positive effect on the liver function (digestive action?). Despite this lack of medicinal specificity, elderly Arbëresh concomitantly agree that consuming *liakra* is ‘healthy’. Only in one case (*Borago officinalis*) did more than 40% of the informants spontaneously mention a specific medical use. Other peculiar medicinal uses of common food plants such as *Leopoldia* or *Capsicum* ssp. have a very sporadic character and often seem to be derived from random experiences of a few informants rather than being consolidate local traditions. Such sporadic mentioning of medicinal applications is diverse and includes descriptions for galactagogues, antihelminthics, febrifuges, anti-diarrhoeals, and as general ‘blood-cleansers’.

Table 4

Ethnogastronomic characteristics of the most common liakra consumed by the Arbëreshë in Ginestra

Botanical taxa	Period of gathering and consumption	Kind of culinary uses	Frequency of the gastronomic use	Complexity of pre-cooking and cooking procedures
<i>Amaranthus retroflexus</i>	June → August	mix	*	++
<i>Apium nodiflorum</i>	March → May	alo	*	+
<i>Asparagus acutifolius</i>	April	alo	**	++
<i>Borago officinalis</i>	March → April	alo	**	++
<i>Capsella bursa-pastoris</i>	March	mix	*	++
<i>Centaurea calcitrapa</i>	April → May	mix	*	++
<i>Chenopodium album</i>	June → August	mix	*	++
<i>Chonrilla juncea</i>	April → May	mix	*	++
<i>Cichorium intybus</i>	April → May	alo	***	++
<i>Clematis vitalba</i>	March → April	alo	*	+++
<i>Crepis vesicaria</i>	March → April	mix	*	++
<i>Diplotaxis tenuifolia</i>	March → May	alo	**	+
<i>Foeniculum vulgare</i> ssp. <i>pi-peritum</i>	March → May	alo	***	++
<i>Leopardia comosa</i>	Non-seasonal	alo	***	+++
<i>Lycium europaeum</i>	March → April	mix	*	++
<i>Nasturtium officinale</i>	March → May	mix	*	+
<i>Origanum heracleoticum</i>	Non-seasonal <sup>#</sup>	alo	**	+
<i>Papaver rhoes</i>	March → April	alo	***	++
<i>Picris echioides</i>	March → April	mix	**	++
<i>Reichardia picroides</i>	March	mix	*	+
<i>Scolymus hispanicus</i>	April <sup>+</sup>	alo	**	++
<i>Sinapis arvensis</i>	March → April	alo	***	++
<i>Sisymbrium officinale</i>	March → April	mix	***	++
<i>Sonchus oleraceus</i>	March → April	mix	***	++
<i>Tordylium apulum</i>	March → April	mix	**	++

Period of consumption of the related food preparations: <sup>#</sup>, period of consumption (non-seasonal) is different from the period of gathering (June → August), while the species is used dried; <sup>+</sup>, used especially during the Catholic Holy Week. Kind of culinary uses: alo: prevalently alone; mix: prevalently in mixtures. Frequency of the gastronomic use: \*\*\*, high (recorded more than three times a year in at least three families); \*\*, middle (recorded at least one time a year in at least three families); \*, low (recorded one to two times a year in one to two families). Complexity of pre-cooking and cooking procedures: +, simple (washing); ++, medium (washing and cooking); +++, high (washing, detoxification process or other special process, and cooking).

Table 5

Plant medicinal foods used by the Arbëreshë

Botanical taxa	Part(s) used	Preparation	Medicinal use	Quotation Index
<i>Allium cepa</i>	bu	Cooked	Galactagogue	+
<i>A. sativus</i>	bu	Crushed and ingested raw	Anti-helminthic	++
<i>Borago officinalis</i>	le	Soups	Post-partum reconstituent and galactagogue	+++
<i>Capsicum longum</i>	fr	Dried and fried	Anti-fever	+
<i>Cichorium intybus</i>	le	Boiled	Blood ‘cleansing’	++
<i>Citrus lemon</i>	fr	Eaten raw	Anti-diarrhoea	+
<i>Leopardia comosa</i>	bu	Cut, macerated in water, then fried	Anti-fever	+
<i>Lupinus albus</i>	se	Cooked or pickled under salt	Anti-diabetes	+
<i>Malus domestica</i>	fr	Cooked	Intestinal ‘cleansing’	++
<i>Malva sylvestris</i>	le	Soups	To enhance uterine contractions during birth	++
<i>Pyrus communis</i>	fr	Eaten raw or roasted	Intestinal ‘cleansing’	++
<i>Vitis vinifera</i>	uf	Snack	Anti-diarrhoea	+
	fr	Boiled fruit juice	Laxative	+

Part(s) used: bu, bulb; fr, fruits; le, leaves; se, seeds; uf, unripe fruits. Quotation Index: +, quoted by less than 10% of the informants; ++, quoted by more than 10% and less than 40% of the informants; +++, quoted by more than 40% of the informants.

### 3.6. With bitter herbs they shall eat it, but if the herbs will be too bitter, they would not

Studies on indigenous perception of taste represent an aspect of modern ethnobiology which is very rarely investigated. A notable and exciting exception is 'With bitter herbs they shall eat it' (Johns, 1990). Arbëresh of Ginestra classify taste in a very specific pattern (Fig. 6). They recognise five main terms of taste, such as *ëmbël* (sweet), *amarë* (bitter/sour), *lapuz* (astringent), *fortë* (hot), and *salitë* (salty). Within the term *amarë*, Arbëresh distinguish between *amarë* (bitter), and *amarë agret* (sour) and at the same time *amarë* and *lapuz* both belong to a covert category covering what in English would be bitter/sour/astringent. The category bitter/sour is often not lexically distinguished, but that does not far mean that the differentiation between bitter and sour does not exist. This recall one of the biggest limit of the traditional folk taxonomical analysis: no every categorisation is always linguistically labelled (Maddalon, 1998; Trumper et al., 1999).

In addition, the term *fortë* can both indicate the hot taste of *Capsicum longum* fruits and that of leaves of *Eruca sativa*. These classification elements scheme are distinguished only at a specific level. Recorded plant prototypes for taste sensation are reported in Table 6,

together with a proposed correspondence between the Arbëreshë taste terminology and the English one. Similarly, as pointed out in a study on taste perception among bilingual Aymara of Bolivia or the Yucatec Maya of Mexico (Johns and Keen, 1985; Ankli et al., 1999), the Arbëreshë have a term (*mirë*), which defines something as 'pleasant', and can be grouped with different taste generics: *ëmbël*, and, less frequently, *amarë* and *fortë*. More often, the same term is used in Ginestra to define herbs which have a mild taste, in opposition to bitter greens. On the other hand, a general term for 'unpleasant' does not exist in Ginestra (Fig. 7).

Mild or even fairly bitter tasting greens (such as the whorls of *Papaver rhoeas* and *Chondrilla juncea*) are considered by the Arbëreshë as food. The more bitter taxa, such us the whorls of non-domesticated *Cichorium intybus* and the processed bulbs of *Leopoldia comosa*, are seen both as food and medicine (used in the local cuisine and as 'blood cleansing' medicine). Plants perceived to be very bitter (*shumë amarë*), such as the leaves and stems of *Marrubium incanum* and *M. vulgare*, are considered to be only medicinal and are used as panacea in the form of decoctions in the local folk phytotherapy.

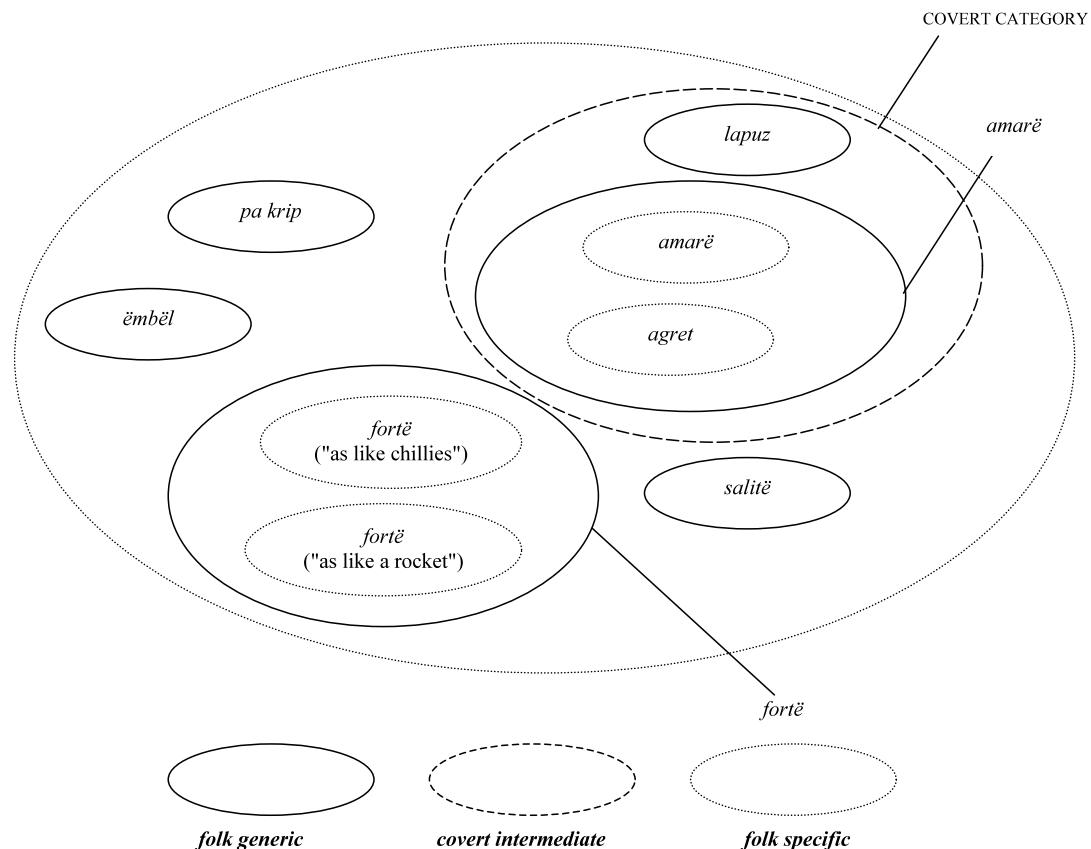


Fig. 6. Representation of the folk classification of taste sensations in Ginestra.

Table 6  
Arbëresh prototypical plants for taste sensations quoted in Ginestra

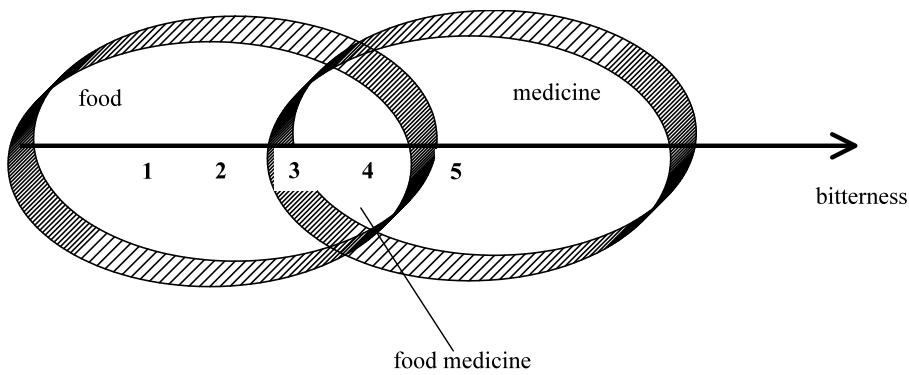
Arbëresh generic/specific for taste sensation	English correspondent (tentative)	Quoted plant prototypes		Plant parts	Quotation index
		Arbëresh name	Scientific plant name(s)		
amarë	bitter	Çikour Maroljë	<i>Cichorium intybus</i> <i>Crepis vesicaria/Taraxacum officinale</i>	wh wh	+++ ++
amarë agret	sour	Ngjumës Kumbulja Lëmon	<i>Chondrilla juncea</i> <i>Prunus domestica</i> <i>Citrus lemon</i>	wh/sh uf fr	++ +++ ++
ëmbël ('as like the taste of fruits')	sweet	Gjirshej Fik	<i>Prunus avium</i> <i>Ficus carica</i>	uf fr	++ +++
ëmbël ('as like the taste of mild weeds')	mild	Mollë Dardhë Ngjumës	<i>Malus domestica</i> <i>Pyrus communis</i> <i>Chondrilla juncea</i>	fr fr wh	+++ ++ +++
fortë ('as like the taste of chillies')	hot	Fënoq Luljëkuq Mëdkaniq/Papëdinj ta fortë	<i>Feoniculum vulgare</i> <i>Papaver rhoes</i> <i>Capsicum longum</i>	sh wh fr	++ + +++
fortë ('as like the taste of rocket')	hot	Rukol Sënap	<i>Diplotaxis tenuifolia/Eruca sativa</i> <i>Sinapis arvensis/S. pubescens</i>	le ap	+++ +++
pa krip	unsalty	Shërpër every plant cooked without salt	<i>Nasturtium officinale</i>	ap —	++ +++
salitië	salty	every plant cooked with too much salt	—	—	+++

Plant parts: ap, aerial parts; le, leaves; fr, fruit; sh, shoots; uf, unripe fruit; wh, young whorls; Quotation index: +, quoted as a prototype by less than 10% of the informants; ++, quoted as a prototype by more than 10% and less than 40% of the informants; +++, quoted as a prototype by more than 40% of the informants.

#### 4. Conclusion

The cultural phenomena analysed here are closely related to the gathering, processing, cooking, and

consuming of *liakra* in northern Lucania and demonstrate that these species are much more important than simple sporadic dietary supplements. Behind them, we have discovered a very complex system in which



- 1: lulëkuq (whorls of *Papaver rhoes*)
- 2: ngjumës (whorls and shoots of *Chondrilla juncea*)
- 3: çëpuljin ta kuqë (bulbs of *Leopoldia comosa*)
- 4: çikour (whorls of wild *Cichorium intybus*)
- 5: marruxh (leaves of *Marrubium incanum* and *Marrubium vulgare*)

Fig. 7. Representation of the bitterness rank of five non-cultivated botanicals and the relation food versus medicine as perceived by the Arbëreshë of Ginestra.

language, traditional land management, social relationships, diet, and medicine are all strongly intertwined. Such rich heritage of *liakra*—which we discussed under the multidisciplinary perspectives of ethnobotany, ethnotaxonomy, ethnoecology, and ethnopharmacology—could hopefully represent a basis for the implementation of the ‘rediscovered’ local TEK on weedy plants used in the traditional local diet.

For the Arbëreshë of the Vulture area, this survey will hopefully result in a better appreciation of their inimitable cultural and linguistic heritage, after many years of forced ‘italianization’. During this period the self-recognition of their roots—surely influenced recently by the negative perspective portrayed by the media and the majority opinion of the Italian population concerning the immigrant flows from Albania since 1991—has been problematically internalised. Therefore, Arbëresh cultural practices have often been ‘banned’ from everyday life.

Moreover, ethnobiological studies among non-dominant ethnic groups in Europe will hopefully contribute to a better understanding of the cultural exchange and dynamics between old and new immigrated/-ing communities and between these and the autochthonous ones.

This study has also an important ethnopharmacological implication. Protective effects of healthy dietary lifestyle was suggested to explain the ‘Albanian paradox’, characterised by high infant mortality, and by contrast, lower adult mortality from cardiovascular diseases (which parallels other southern European countries) (Gjonça and Bobak, 1997). In addition, longevity has also been correlated to the ‘Mediterranean diet’, distinguished by the high consumption of olive oil, fruits, and vegetables (Trichopoulou and Vasilopoulou, 2000).

Although there is no universally accepted definition, functional foods can be described as food, which ‘have besides their main nutritional or delight purposes still other effects on body function’ (Preuss, 1999) and occupy a third space between food and medicine. On the basis of the ethnobiological data presented here, and of the limited data reported in the scientific literature, *liakra* represent potential functional foods. Consequently, such products should be investigated pharmacologically and phytochemically in greater details and we have carried out studies on in vitro antioxidant effects of selected Arbëresh *liakra* (Pieroni et al., 2002).

An important long term potential output of this study may be the development of eco-sustainable projects with the primary goal of biological conservation and sustenance of the rapidly vanishing traditional agricultural and gastronomic practices, and of the Arbëresh language and culture as well. Moreover, functional foods are a fast growing segment of the food market and the

ethnobotany of *liakra* may even lead to economically profitable applications.

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