

Research report

Ta chòrta: Wild edible greens used in the Graecanic area in Calabria, Southern Italy

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Abstract

Dietary patterns change rapidly all over the world. The body of available local food knowledge, which forms the basis of many local traditions, is decreasing dramatically. At the same time, consumers demand novel types of tasty food, which is easy to prepare. In the Mediterranean, vegetables and salads made from wild greens have been particularly important as local (traditional) foods since ancient times. This double interest in local plant use and diets led to an ethnobotanical and socio-nutritional survey carried out in 2002 and 2003 among the inhabitants of the Graecanic area in Southern Calabria, Italy. The Graecanic area is part of the cultural and linguistic heritage of the *Magna Graecia* and the later Byzantine Empire. The villagers in the area have retained many aspects of this cultural heritage, including their own language *Grecanico*, in which wild edible greens are called *ta chòrta*. The inhabitants of the Graecanic area regularly gather more than 40 wild food species. The present study demonstrates how the consumption of wild food plant species is strongly embedded in the local culture, and that they contribute to a healthy and balanced diet.

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1. Introduction

Food use is changing very fast on all continents. In industrialised countries, there is a considerable rise in expenditure for convenience food (pre-prepared or ready made dishes). At the same time, nutraceuticals and functional foods are a rapidly growing segment of the market. Concurrently, there is a dramatic and un-revocable loss of “local knowledge” regarding food use, which forms the basis of many cultural traditions (traditional food knowledge). These and other changes (e.g. reduced physical activity, increased longevity) result in novel health risks for the populations in European countries and beyond (Popkin, 2004).

Traditional¹ food knowledge is strongly influenced and determined by socio-economic and cultural parameters, as well as religion and history (Johns, Chan, Receveur, & Kuhnlein, 1994). All food is part of human’s everyday

experience and the way it is perceived and classified forms the basis for food use in a culture. Around the Mediterranean, a multitude of cultures, religious beliefs, ecologic backgrounds and historic developments resulted in many diets which share a lot of elements but also revolve around distinct local or regional traditions (Nestle, 1995). “Local food” as part of local traditions, is based on ingredients, which are gathered, grown or produced locally and prepared into dishes, which often represent local specialities (Heinrich, Leonti, Nebel, & Peschel, 2005). Vegetables and salads comprising wild greens are especially important as local foods. They have been an element of Mediterranean dietary traditions for millennia.

In the past decade, only a few studies have systematically analysed the consumption of non-cultivated botanicals in the Mediterranean area (Bonet & Valles, 2002; Forbes, 1976; Guarrera, 2003; Paoletti, Dreon, & Lorenzoni, 1995;

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¹The term “traditional” or “traditionally” is used in this paper for defining something that has been an *integrated part of a culture for more than one generation* (Ogoye-Ndegwa & Aagaard-Hansen, 2003).

Ertug, 2004; Pieroni, Nebel, Santoro, & Heinrich, 2005; Rivera et al., 2005; Tardio, Pascual, & Morales, 2005). All these studies clearly demonstrate that these local foods still represent a relevant part of traditional Mediterranean diets. Additionally, the nutritional potential of non-cultivated vegetables native to the Mediterranean and the Near East, and their potential health benefits have been recognised as an important area of research (Couladis, Tzakou, Verykokidou, & Harvala, 2003; Guil Guerrero, Gimenez Martinez, & Torija Isasa, 1998; Pieroni, Janiak et al., 2002; Tarwadi & Agte, 2003; Trichopoulou et al., 2000; Zeghichi, Kallithraka, Simopoulos, & Kyriotakis, 2003).

However, assessing changes in local diets are difficult since in many instances “traditional” or local dietary patterns have already disappeared and often no quantitative data on food consumption in traditional societies is available (Tumino, Frasca, Giurdanella, Lauria, & Krogh, 2002). Consequently, systematic investigations regarding traditional food culture are urgently required. This applies especially to those areas which, for geographical and historical reasons, remain relatively isolated and where traditional food use practices are still alive, but at risk of disappearing in the future due to industrial or other development.

In this interdisciplinary study, ethnobotanical and nutritional anthropological methods were used to assess the diversity and the role of wild food plants in local nutrition and cuisine. The study identifies plants traditionally consumed in rural communities in Southern Italy, quantifies their consumption and, equally important, adds new value to local food products which have been used for many generations. This report represents the first step of an European Union-funded research project, which aimed at contributing to the continued use of non-cultivated food plants, as well as to the search for new nutraceuticals from non-cultivated local resources, which are of potential interest in the prevention of aging related diseases (The Local Food-Nutraceuticals Consortium, 2005).

2. Background

The migration of the Greek and other peoples in the Mediterranean in history is reflected in many ethnic, linguistic and religious minorities which still exist today (Rother, 1989). This study focuses on relatively isolated Greek communities in Calabria, Southern Italy. Historically, parts of Southern Italy, as we know it today, came under Greek influence during the eighth century BC, and were known as *Magna Graecia* (Cerchiai, Jannelli, & Longo, 2004). The Greek influence continued over centuries until the end of the later Byzantine Empire in 1453 AC. Today, the Greek minorities in Southern Italy (Graecanic areas) have receded into the eastern Province of Salento, Region of Apulia, and into the Province of Reggio di Calabria in the Region of Calabria (see Fig. 1) (Pan & Pfeil, 2000).



Fig. 1. Map of Italy. A—Region of Apulia; S—Province of Salento; C—Region of Calabria; RC—Province of Reggio di Calabria.

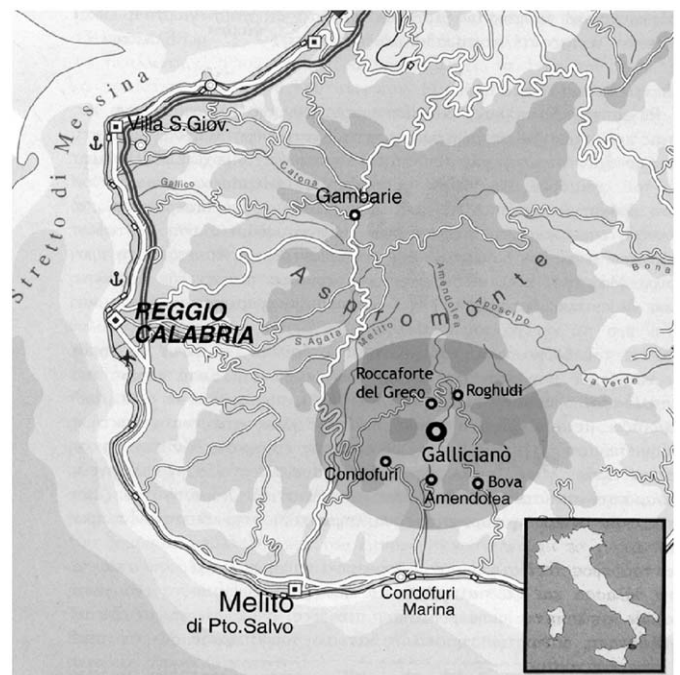


Fig. 2. Graecanic area in the Province of Reggio di Calabria, Region of Calabria. Graecanic villages: Amendolea, Bova, Condofuri, Galliciano, Roccaforte del Greco and Roghudi (Condemi, 1999).

The Graecanic communities in Calabria are located in the Aspromonte Mountains in the southern strip of Apennine Mountains: Bova, Amendolea, Condofuri, Galliciano, Roccaforte del Greco, and Roghudi (see Fig. 2) (Condemi, 1999). The population of these villages varies

from 100 to 1000 inhabitants. The inhabitants of this Graecanic area are, as compared to the surrounding Italian population, characterised by their own language (*Grecanico*), culture and history as an ethnic and linguistic minority. *Grecanico* is now only spoken by elderly people, whilst the younger generation mainly uses the Calabrian Italian dialect. Due to the geographic isolation of the villages, they have retained many aspects of their cultural heritage. Access roads were only built in the 1950s and lead to an increasing Italian influence.

Today, pastoralism and subsistence agriculture are still part of the traditional livelihood in the area. In the past, the cultivation of wheat and other grains was of considerable importance. However, economic changes, emigration as well as serious floods and earthquakes (1951 and 1971) have led to the gradual abandoning of tillage and pastoral activities and a sharp decline of the resident population. In addition, extensions of the community were built along the coast (*la marina*) which disrupted the continuity of the transmission of traditional knowledge (Kish, 1953). Nevertheless, the gathering of wild food plants still plays an important role in the traditional diet and is an integral part of the Graecanic culture.

3. Methods

The research approach adopted for this interdisciplinary research combined ethnobotanical methods with a socio-nutritional study. The ethnobotanical fieldwork was mainly conducted in Galliciano during the spring seasons of 2002 and 2003 (February until May) and 2 months during the autumn of 2002. Additionally fieldwork was carried out in the other Graecanic communities of Bova, Ghorio di Roccaforte, Roghudi, Amendola and Condofuri.

Traditional knowledge regarding food plants was assessed using standard ethnobotanical tools, including free listing exercise (Alexiades & Sheldon, 1996, pp. 53–94), participant observation and interview techniques. In the first phase of the field research 18 research participants (7 male and 11 female; aged between 18 and 88, average age 55) were asked to list any non-cultivated food plant that are used on a regular basis or were used in the past, respectively. Data obtained from the free listing exercise were analysed using ANTHROPAC (4.72 version) (Borgatti, 1992).

In-depth knowledge about the use of wild food plants was collected in semi-structured and structured interviews (Schensul, Schensul, & LeCompte, 1999) with 36 elderly inhabitants of the Graecanic communities (19 female, 17 male; average age 64). Women are directly involved in work with food for the family and therefore possess knowledge especially as it relates to different aspects of food production and use. Men most notably retain specific knowledge about gathering (e.g. identification, where, when) of wild food plants. The interviews were all conducted in Italian, as all informants were bilingual in

Calabrian (an Italian dialect) and *Grecanico*. For each of the identified food species the local name in *Grecanico*, if available, information about the plant parts used, the traditional culinary uses, taste and frequency of use were recorded. Participant observation techniques (Cotton, 1996; Cunningham, 2001; Martin, 1995) were utilised to better understand the cultural implications of plant gathering, preparation and distribution of foods within the community. Participant observation proved to be a useful method for discovering details about social and ecological issues. Classical cognitive anthropological series of queries were also used to analyse the local classification of these botanicals (Berlin, 1992).

The identification of the reported food plant species is based on Pignatti's (2002) *Flora d'Italia*. Two voucher specimens of each food plant accompanied by detailed notes on the collection locality, characteristics of the plant, its local culinary uses, vernacular names and their meanings were deposited at the herbarium of the Centre for Pharmacognosy and Phytotherapy, School of Pharmacy, University of London (UK).

In the socio-nutritional study, wild gathered vegetable intake was assessed in one community (Galliciano) asking the question: "how often do you eat [name of plant] when it is in season?" Response options ranged from "never" to "most days". Any health beneficial effects or health risks associated with wild gathered vegetables were assessed with further questions: "Does this [names of the plant] have any helpful/beneficial effect on your health? If yes, please describe these effects in detail". "Are there any health risks or possible adverse effects associated with this food? If yes, what are these?" Prompts were used to gather more information on possible health risks, such as: "Do you think it affects your general health/life expectancy? Do you think it has an effect on any particular condition or symptoms, and if so which?" Due to the small size of the community (16 households) only 22 questionnaires in 7 households could be administered, allowing only very limited statistical analysis including the generation of frequency data and summary statistics with SPSS version 13.0.

4. Results and discussion

4.1. Food plants traditionally consumed in the Graecanic area

The inhabitants of the Graecanic communities in which the study was conducted regularly gather 48 wild food species. Table 1 lists food plants cited by at least three informants (cf. Johns, Kokwaro, & Kimanani, 1990) and includes botanical and ethnobotanical core information on these plants. Ethnotaxonomically, *edible greens* are an independent category in the domain of food plants called *ta chòrta* in *Grecanico*, which roughly corresponds to what in bioscientific nutritional studies is called "green leafy vegetables". The same term τα χόρτα (*ta chòrta*) was found

Table 1
Semi- and non-cultivated food plants traditionally gathered and consumed in the Graecanic communities in Calabria (Galliciano and other villages), FU = Food use; r = raw; nr = non-raw; b = both; Taste = *pricto* (bitter), *glicio* (sweet) FRQ = Frequency of use; ●●● = once a week; ●● = less than once a month; ● = less than once a month; FL = Free listing exercise; count on how often the plant species were mentioned; — = not mentioned during the FL exercise

Scientific plant name	Vernacular name (Graecanic)	Family	Part(s) used	FU	Traditional culinary uses	Taste	FRQ	FL
<i>Apium nodiflorum</i> (L.) Lag.	<i>Spelendro</i> (singular), <i>Spelendra</i> (plural.)	Apiaceae	Aerial parts	b	Raw or cooked as salad, with spring onions, oil and vinegar	<i>Celery like</i>	●	—
<i>Asparagus acutifolius</i> L.	<i>Asparagi</i>	Liliaceae	Young shoots	nr	<i>Frittata</i> —omelette with egg, flour and <i>pecorino</i> (goat's cheese) — Boiled with rice or pasta — With tomato sauce	<i>glicio</i>	●	—
<i>Boletus edulis</i> Bull. Fr.	<i>Baroselli</i> , <i>Baruso</i> , <i>Bavuseddhi</i>	Boletaceae	Fruiting body	nr				—
<i>Borago officinalis</i> L.	<i>Gabbuina</i> ^G , <i>Ligabbuina</i> ^A	Boraginaceae	Aerial parts	b	<i>Chòrta tiqimimena</i> (CT) ^a and <i>vramena</i> (CV) ^b	<i>glicio</i>	●	—
<i>Capsella bursa-pastoris</i> (L.) Medik.	—	Brassicaceae	Young leaves	nr	CT, CV		●	—
<i>Carlina corymbosa</i> L.	<i>Fucida</i>	Asteraceae	Stem	r	Raw as snack	<i>glicio</i>	●	4
<i>Castanea sativa</i> Mill.	<i>Castano</i> , <i>Castana</i>	Fagaceae	Fruits	b	— Raw as snack = <i>castana omà</i> — Baked = <i>castana furrimena</i> — Boiled in water = <i>castana vramena</i>		●●●	—
<i>Chondrilla juncea</i> L.	<i>Grospartù</i>	Asteraceae	Young shoots, basal leaves	b	— Raw as snack (shoots are peeled and eaten) — As salad with oil and vinegar — CT, CV		●●	—
<i>Chrysanthemum segetum</i> L.	<i>Ciccuddho</i> , <i>Ciccuddhaci</i>	Asteraceae	Top of aerial part	r	Raw as snack	<i>pungent</i>	●	4
<i>Cichorium intybus</i> L.	<i>Cicòria</i>	Asteraceae	Basal leaves	nr	CT, CV	<i>pricio</i>	●●	3
<i>Cynara cardunculus</i> ssp. <i>cardunculus</i>	<i>Carciofi salvacce</i>	Asteraceae	Flower bud	nr	Boiled and/or fried		●	4
<i>Ficus carica</i> L. (diverse cultivars)	<i>Sico</i>	Moraceae	Pseudofruits	r	— Eaten fresh as snack — Dried as snack, eaten in winter = <i>Còzula</i> — <i>Petràlia</i> = traditional sweet prepared during Christmas period with a mixture of honey (<i>meñi</i>), flour, almonds (<i>amiddàla</i>), walnuts (<i>cariddi</i>), dried figs and raisins.		●●●	—
<i>Foeniculum vulgare</i> ssp. <i>piperitum</i> (Ucria) Coutinho	<i>Másaro</i> (sg.), <i>másara</i> (pl.) ^G , <i>fenocchio salvacce</i> ^{RG, C, B}	Apiaceae	Young aerial parts and seeds	b	— <i>Fasuli me ta másara</i> : soup with beans, wild fennel, potato and pasta — As condiment in salads — <i>To spiro másaro</i> = fennel seeds used as condiments in local produced salami and other dishes — CT, CV	<i>glicio</i>	●●●	12
<i>Hedypnois cretica</i> Willd.	—	Asteraceae	Basal leaves	nr	CT, CV		●●●	—
<i>Hedysarum coronarium</i> L.	<i>Siddha</i>	Fabaceae	Stems	r	Suck raw as snack	<i>glicio</i>	●	—
<i>Hirschfeldia incana</i> (L.) Lagr.-Foss.	<i>Senapia</i>	Brassicaceae	Aerial parts	nr	CT, CV		●●	—

<i>Hypochoeris achyrophorus</i> L.	<i>Maruddhaci</i>	Asteraceae	Basal leaves	nr	CT, CV	••	<i>glicio</i>	7
<i>Hypochoeris radicata</i> L.	<i>Costardeddhe, Costa di vecchia</i>	Asteraceae	Basal leaves	nr	CT, CV	•••		—
<i>Juglans regia</i> L.	<i>Caridi</i>	Juglandaceae	Kernel	b	– Raw as snack – In sweets like <i>Petralia</i> (see <i>Ficus carica</i>)	•••		—
<i>Lactarius deliciosus</i> (L.) Gray	<i>Rusitte</i>	Russulaceae	Fruiting body	nr	First boiled, then fried with olive oil, farina and garlic	•		—
<i>Lactuca serriola</i> L.	<i>Glossa to sciddhio</i>	Asteraceae	Young aerial parts	b	CT, CV	•	<i>glicio</i>	—
<i>Lactuca viminea</i> (L.) Presl.	<i>Pricaddhida</i>	Asteraceae	Basal leaves	b	– Raw as salad (with oil and vinegar) – CT, CV	•••	<i>pricio</i>	13
<i>Laurus nobilis</i> L.	<i>Lauro</i>	Lauraceae	Leaves	nr	As condiment in the traditional tomato sauce	•••		—
<i>Lotus edulis</i> L.	<i>Carrafcia</i> ^G <i>Carrambitula</i> ^R <i>Menta</i>	Fabaceae	Young fruits	r	Raw as snack	•	<i>glicio</i>	7
<i>Mentha</i> sp.		Lamiaceae	Aerial parts	nr	<i>Peperonata</i> = sweet pepper, potatoes and aubergine fried in olive oil, condiments: mint and rosemary	••		—
<i>Morus alba</i> L.	<i>Sicameno aspro</i>	Moraceae	Fruits	r	Raw as snack	•		—
<i>Morus nigra</i> L.	<i>Sicameno mavro</i>	Moraceae	Fruits	r	Raw as snack	•		—
<i>Onopordum illyricum</i> L.	<i>Anipordo</i> ^G	Asteraceae	Inner part of roots	r	Raw as snack	•	<i>glicio</i>	3
<i>Opuntia ficus-indica</i> Mill.	<i>Nápor-do</i> ^A <i>Sico tu truau, ficarazzi</i> (fruits); <i>pittara</i> (plant)	Cactaceae	Fruits	r	– Raw as snack – <i>ta ascasia</i> (<i>ficarazzi affurmena</i>) = dried fruits eaten as snack during winter – Eat in the morning and not in the evening – Do not drink wine, when eating	•••		—
<i>Origanum heracleoticum</i> L.	<i>Rigano</i>	Lamiaceae	Flowering tops	b	Condiment	•••		5
<i>Papaver rhoeas</i> L.	<i>Paparina</i>	Papaveraceae	Leaves	nr	CT, CV	•••	<i>glicio</i>	7
<i>Pimpinella anisum</i> L.	<i>Cinimo</i>	Apiaceae	Seeds	nr	<i>Scardateglia</i> : aniseed flavoured sweets prepared for weddings	•		—
<i>Portulaca oleracea</i> L.	<i>Andrácla</i> ^G <i>Porcellana</i> ^R <i>Amiddala</i>	Portulacaceae	Aerial parts	r	Raw as salad (oil and vinegar)	•	<i>glicio</i>	—
<i>Prunus dulcis</i> (Mill.) D. A. Webb.		Rosaceae	Kernel	r	– <i>Petralia</i> (see <i>Ficus carica</i>) – mandorlata = almond milk	•••		—
<i>Punica granatum</i> L.	<i>Rudi</i>	Punicaceae	Fruits	r	Raw as snack	•••		—
<i>Reichardia picroides</i> (L.) Roth.	<i>Gaddhazzida</i> ^G	Asteraceae	Basal leaves	b	– Raw as snack – CT, CV – <i>Gaddhazzida me ta fasuli</i> (with beans)	•••	<i>glicio</i>	10
<i>Reseda alba</i> L.	<i>Caddhazzida</i> ^{RG} <i>Galazzida</i> ^B <i>Gattinaria</i>	Resedaceae	Aerial part	b	– Eaten raw with olive oil and bred – CT, CV	•••	<i>pricio</i>	11
<i>Rosa canina</i> L.	<i>Rosa</i>	Rosaceae	Petals	r	– <i>Meli</i> (honey) flavoured with rose petals (dried) – Ricotta eaten with Rosehoney	•		—

Table 1 (continued)

Scientific plant name	Vernacular name (Greccanico)	Family	Part(s) used	FU	Traditional culinary uses	Taste	FRQ	FL
<i>Rubus ulmifolius</i> Schott	<i>Mure che chaliò</i>	Rosaceae	Fruits	r	Raw as snack		••	—
<i>Rumex acetosa</i> L.	<i>Aceturia</i>	Polygonaceae	Stems	r	Raw as snack	<i>pricio</i>	•	—
<i>Rumex scutatus</i> L.	<i>Aceturia</i>	Polygonaceae	Leaves	r	Raw as snack	<i>pricio</i>	•	—
<i>Scolymus hispanicus</i> L.	<i>Scalimbri</i>	Asteraceae	Leaf stalks	nr	— <i>Scalimbri me ta lasagne</i> : leaf stalks cooked with home made pasta — <i>CT, CV</i>	<i>glicio</i>	••	8
<i>Silene vulgaris</i> (Moench) Gareke	<i>Cavuràci</i> ^G <i>Cavuleddu</i> ^C	Caryophyllaceae	Young aerial parts	nr	<i>CT, CV</i>	<i>glicio</i>	•	—
<i>Sinapis arvensis</i> L.	<i>Rapa</i>	Brassicaceae	Young aerial parts	nr	<i>Frittata</i> : omelette with egg, flour and <i>pecorino</i> (goat's cheese)		••	—
<i>Sonchus asper</i> (L.) Hill.	<i>Zuccho</i>	Asteraceae	Young leaves	nr	<i>CT, CV</i>	<i>glicio</i>	••	7
<i>Sonchus oleraceus</i> L.	<i>Zuccho</i>	Asteraceae	Basal leaves	nr	<i>CT, CV</i>	<i>glicio</i>	•••	7
<i>Taraxacum</i> sp.	<i>Cuscuneddhi</i> , <i>Cicòria</i>	Asteraceae	Basal leaves	nr	<i>CT, CV</i>	<i>pricio</i>	•••	3
<i>Tragopogon crocifolius</i> L.	—	Asteraceae	Young leaves	b	— Raw as snack — <i>CT, CV</i>	<i>glicio</i>	•	—
<i>Tuber melanosporum</i> (symbiotic with <i>Cistus</i> sp.)	<i>Caratompola</i>	Tuberaceae	Fruiting body	b	— Raw — Grated on top of pasta — Cooked, sliced and fried with farina in olive oil — <i>sotto olio</i> —preserve in olive oil		••	6
<i>Urospermum</i> <i>dalechampii</i> (L.) Schmidt-B.	<i>Russédlna</i>	Asteraceae	Basal leaves	b	— Raw as snack — <i>CT, CV</i>		•	—
<i>Urospermum picroides</i> (L.) Schmidt	<i>Zuccho</i>	Asteraceae	Basal leaves	nr	<i>CT, CV</i>	<i>pricio</i>	••	7

^GGallicianò ^{RC}Roccaforte del Greco, ^AAmendolea, ^CCondofuri, ^BBova, ^RRoghudi, only indicated, if the plant name is specific for one village.

^a*Chòrta tiganimena* (CT) = fried wild edible greens (*chòrta*) washed then boiled and fried—after boiling in water, wrung out, fried in olive oil with garlic and chilli.

^b*Chòrta vramena* (CV) = cooked wild edible greens (*chòrta*) boiled in salted water until tender. Eaten with olive oil and lemon.

in literature to describe wild food plants in Greece (Forbes, 1976; Lambraki, 2000). In general *ta chòrta* refers to non-cultivated species. However, the distinction between cultivated and non-cultivated species is quite vague and fluctuant, indicating that such a distinction is of limited relevance at the local level. Additionally, some locally important fruits, roots, condiments (*àrtema*) and mushrooms (*mulitària*) are listed in Table 1.

Most of the recorded plant species are commonly used in Southern Italy and the Mediterranean region (Aliotta, 1987; Bonet & Valles, 2002; Corsi & Pagni, 1979; Guarrera, 2003; Mattiolo, Gallino, & Pallavicini, 2005; Paoletti et al., 1995; Pieroni, Nebel, Quave, Munz, & Heinrich, 2002; Rivera et al., 2005; Scherrer, Motti, & Weckerle, 2005; Tardio et al., 2005; Leonti, Nebel, Rivera, & Heinrich, 2006). However, several species are primarily used regionally in Italy, for example, *Chrysanthemum segetum* (Calabria and Apulia), *Urospermum picroides* (Abruzzo, Calabria), *Lotus edulis* (Calabria), *Hedypnois cretica* (Calabria, Graecanic area) and *Reseda alba* (Calabria, Graecanic area) (Picchi & Pieroni, 2005).

Reseda alba, *Gattinaria* in *Grecanico*, is an example of a very local food plant, which is used very frequently and appreciated as vegetable in the Graecanic area, but not in Italian communities, where the plant is considered to be too bitter in taste. In Galliciano, the tops of the shoots are either eaten raw, seasoned with olive oil, or cooked and fried in olive oil with garlic, chilli and pepper mixed with other wild greens. Only two references to the use of *Reseda alba* as food in the Mediterranean were found. Firstly, young leaves of *Reseda alba* used as vegetable in Greece (Heldreich, 1862) and, secondly, as salad by the villagers of the surroundings of Larnaca in Cyprus (Arnold-Apostolides, 1991). Interestingly, both records are from regions of the Eastern Mediterranean, which were, in historic times, part of the Greek and Byzantine worlds, as the Graecanic area in Southern Italy.

Taste is a key criterion for perceiving, categorising and characterising food plants in general (Grivetti, 1981; Johns, 1986; Nebel, 2001). The inhabitants of the Graecanic area often ascribe a specific taste to singular plant species, particularly to *ta chòrta* species (see Table 1). For example the taste of *Reseda alba*, or *Lactuca viminea* is described as “bitter” (*pricìo* in *Grecanico*) and of *Papaver rhoeas* as “sweet” (*glicìo* in *Grecanico*). Local gatherers pay attention to collect both bitter and sweet herbs to assure a balanced taste of the dishes to be prepared. Generally, bitterness plays a very important role in the local perception of health, as the bitter taste of wild greens is perceived as healthy in the sense of “blood clearing” and “good for the liver”. In Roghudi, edible greens are also called *chòrta pricià-bitter wild greens*. Already in 1862 Heldreich reported that many plants from the Asteraceae family were considered to be healthy by the Greeks, because of their bitterness (Heldreich, 1862). Pieroni et al. (2002) reported similar results among ethnic Albanians in Southern Italy.

Elderly women are the main keepers of traditional knowledge in the domain of local food plants, while men play an important role in gathering plants and fungi that grow far away from the village. The gathering of wild greens is seasonal. Most of the traditionally used wild species are gathered during winter and spring (December–May). They are very valuable as vegetable substitute in early spring, as they are available several weeks before the garden varieties.

The results of the free listing (FL) exercise are shown in the right hand column of Table 1. The plants with the highest scores in the FL exercise represent the most commonly recognised elements of the domain “wild gathered food plants”. The salience is a statistic accounting for rank and frequency where a high value reflects both a high frequency and high rank in the informants’ lists (Quinlan, 2005). In this study, a relatively high salience was found for *Pricaddhida* (*Lactuca viminea*; 0.49), *Gattinaria* (*Reseda alba*; 0.47) and *Gaddhazzida* (*Reichardia picroides*; 0.43). Accordingly, these plants are well known to both genders as well as in different generations. This is not the case for many wild food plants: only very few of the younger generation, which are no longer fluent in *Grecanico*, are able to identify the culturally most important wild edible plant species. Evidence from the field suggests that the loss of knowledge about local plant names in *Grecanico* is likely to result in a decrease in the number and variety of plant species known and used. The consensus analysis, which enables the researcher to assess the degree of shared knowledge possessed by informants about a given cultural domain, showed a strong cultural agreement of 82% ($n = 18$). This high value indicates a high rate of agreement between the informants about the culturally most important wild food plant species.

4.2. Local dishes

A traditional lunch in spring consists of pasta with tomato sauce (Italian *sugo*: tomato, onion, garlic, bay leaves, oregano or basil) as first course, and *ta chòrta* (wild edible greens), local bread, salad, salami and cheese (*pecorino*—sheep’s cheese) as second course. Many dishes made of leafy wild greens are part of the everyday cuisine (Table 2) and consist of a broad range of species, reflecting the seasonal aspect of gathering, as well as the aspect of taste (bitter vs. sweet). Regional specialities and traditional dishes are important elements of local food culture.

The traditional preparations include boiling, frying, baking, or eating raw with olive oil and vinegar. Most leaf vegetables that need cooking can be added to soups, boiled and seasoned with olive oil, or sautéed in the frying pan with olive oil, garlic and other herbs.

4.3. Results of the socio-nutritional study in Galliciano

For this study, seven households of Galliciano were randomly selected. All the household members above the

Table 2
Local dishes comprising wild food plants in the Graecanic area in Calabria, Southern Italy

Name of the local dish in <i>Grecanico</i>	Description, mode of preparation	Wild food plant species used
chòrta vramena	Mixed wild greens (<i>chòrta mimmena</i>) boiled and seasoned with olive oil and <i>pipighe</i> (chili); Always: <i>chòrta pricia</i> (bitter) mixed with <i>chòrta glicia</i> (sweet)	<i>Reichardia picroides</i> , <i>Reseda alba</i> , <i>Lactuca viminea</i> , <i>Papaver rhoeas</i> , <i>Hypochoeris achyrophorus</i> , <i>H. radicata</i> , <i>Sonchus asper</i> , <i>S. oleraceus</i> , <i>Urospermum dalechampii</i> , <i>U. picroides</i>
chòrta tiganimena	Mixed wild greens (<i>chòrta mimmena</i>) boiled and sautéed in frying pan with olive oil, garlic and fresh chili	Same species as <i>chòrta vramena</i>
fasùli me ta másara	Soup with broad beans, young leaves of wild fennel, carrots, potato, pasta and fresh chili	<i>Foeniculum vulgare</i> ssp. <i>piperitum</i>
sculimbri me ta lasagne	Leaf stalks of <i>Scolymus hispanicus</i> cooked with home made pasta	<i>Scolymus hispanicus</i>
insalata di spèlendra	Raw or cooked as salad, with spring onions, oil and vinegar	<i>Apium nodiflorum</i>
frittata	Young shoots mixed with egg, flour and <i>pecorino</i> (goat's cheese) and fried like an omelette	<i>Hirschfeldia incana</i> , <i>Asparagus acutifolius</i> , <i>Sinapis arvensis</i>

Table 3
Frequency of wild food plant consumption in Galliciano, Southern Italy: comparing younger people (<45 years, $n = 10$) with elderly people (≥ 45 years, $n = 12$)

How often do you eat wild food plants when it is in season?	Age group		Total counts
	<45 years counts	≥ 45 years counts	
Most days	3 (30%)	4 (33.3%)	7 (31.8%)
At least once a week	7 (70%)	5 (41.7%)	12 (54.5%)
Once a week to once a month	—	3 (25%)	3 (13.6%)
Less often	—	—	—
Total	10 (100%)	12 (100%)	22 (100%)

Pearson χ^2 on 2df = 3.322, $P = 0.190$.

age of 17 years were asked to participate. This resulted in a sample of 12 women (55%) and 10 men (45%) with an average age of 46 years (from 18 to 97 years old). There was a good response rate of 84.6%, with a total of 22 completed interviews. The reasons for not participating in the study were lack of time (especially male members of the household) and physical impairment.

Wild gathered food plants are consumed regularly when in season. The analysis showed that, on average, the participants consume three portions (1 portion equals 1/2 cup, cooked) of *chòrta tiganimena* or *chòrta vramena* a week. Despite the expectation that mostly the elderly eat wild greens, there are no significant differences ($P = 0.19$) between the age groups, regarding the consumption of wild food plants (see Table 3). However, all the interviewees agreed that today far fewer non-cultivated vegetables are consumed than in previous decades.

Wild food plants are regarded as to be healthy by 80% of the informants participating in the socio-nutritional study ($n = 22$), while only 20% were uncertain about potential health benefits. Such beneficial effects were described as depurative (help to remove toxins from the blood or internal organs), antihypertensive, digestive, diuretic,

anti-arthritis, anti-diabetic, anti-cancer or to make one “feel better”. As mentioned before, *bitter* edible greens are perceived as being particularly healthy. The consumption of wild food plants is highly relevant for health, as they often contain higher amounts of bioactive compounds than plants that have been under cultivations for many generations (Lionis, Faresjo, Skoula, Kapsokafalou, & Faresjo, 1998; Stepp, 2004). Trichopoulou et al. (2000) showed, that eight wild green species consumed in Crete have a very high flavonoid content when compared with cultivated fresh vegetables, fruits and beverages commonly consumed in Europe.

In the perception of most informants (79%), wild food plants possess no health risks or possible adverse effects, whereas 13% of the informants did not know. Only 8% of them associated some risks with wild food plant consumption. These were described as “to be avoided by people suffering gastritis or colitis”, allergy or toothache. The informants clearly mentioned that these risks were related to the dose. One informant said: “if I eat a bit [of wild food plants], I enjoy it—if I eat too much, it gives me stomach-ache”. In general, there is not enough bioscientific (phytochemical or pharmacological) information available

to assess potential health risks of the dishes used in the Graecanic area.

5. Conclusion

The Graecanic villages and specifically Galliciano are an example of rapidly changing communities where local traditions compete with modern ways of life. The present study demonstrates how the traditional consumption of wild food plant species is strongly embedded in the local culture, providing a strong link between local people and their management of the natural environment. The idea that local cultivars or dishes are an important cultural element is, of course, not a new one. The concept of “Local Food” described by Heinrich et al. (2005), offers an integrative theoretical framework to study and further develop these crucial elements of “local knowledge”.

The habit of collecting and cooking edible non-cultivated plants is still alive among the older generation. However, it seems only a question of time before this traditional knowledge is lost forever. Already today, a lot of traditional knowledge regarding food use is no longer actively used by the younger generation and is subject to many outside influences and changes. The fact, that wild food plants are especially appreciated among the elderly people can be ascribed to many factors: the perceived healthiness, taste appreciation as well as “sense of local/cultural identity”. Nevertheless, younger people, who are not able to identify, and to gather many of the culturally important wild food plants of the Graecanic area, still eat wild food plants collected and prepared by their parents, as a supplementary source of vegetables. No difference regarding the frequency and amount of consumption was reported between the different age groups.

To re-valorise local food traditions, a small handbook on the use of wild food plants in the Graecanic area was published (Nebel, 2005). Furthermore, to strengthen this traditional knowledge novel curricula in schools and universities are required, as well as substantial changes in the agenda of many national food and local policy-makers in the Mediterranean (cf. Fajardo, Verde, Rivera, & Obon, 2005). Sustaining food agro-biodiversity is only meaningful if the efforts will take in account the inextricably connected cultural heritage, what is now called “bio-cultural diversity” (Maffi, 2001).

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