Plant food as medicine in Mediterranean Spain

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RÉSUMÉ

Dans l'article suivant est présentée une sélection d'exemples concernant les rapports entre les aliments d'origine végétale, les plantes médicinales et les pharmacopées locales de l'Espagne Méditerranéenne. On propose, aussi bien, une discussion sur l'influence des traditions écrites du Moyen Age, en ce qui concerne le répertoire actuel des ressources ethnopharmacologiques.

INTRODUCTION

Following the biogeographical method, most of the Iberian Peninsula belongs to the Mediterranean Region. Only the Northern parts of Spain and Portugal (comprising the Cantabric mountains and most of the Pyrenees) are included within the range of the Medioeuropean Region. The rest is strictly Mediterranean, although in this paper the epithet is used in a more restricted meaning, comprising primarily the Eastern portion of Spain, which is known under the name of Superprovince Mediterranean-Ibero-Levantine by RIVAS-MARTÍNEZ (1987). Two different languages are spoken in the area, Spanish and Catalonian, both evolved from the Medieval Latin. There is a common tradition of medicinal use of plants which has been shared by the peasants of both linguistic communities. Although there is a list of former publications concerning local medicinal uses (CONILL, 1938; CALICÓ, 1930; LAZA, 1940), the ethnobotanical and ethnopharmacological research have been undertaken seriously only during the past decade in Mediterranean Spain (GONZÁLEZ-TEJERO, 1989; MULET, 1991; OBÓN & RIVERA, 1991; RIVERA & OBÓN, 1991, VILLAR *et al.*, 1992, BONET, 1993). The repertory of plant and uses produced can be compared with the written medieval traditions.

The folk medicine in the area has been preserved through the oral transmission of information and adapted on account of the direct experience of the different pathologies and remedies. Peasants of many isolated places in Andalusia, Aragonia, Catalonia, Murcia, or Valencia evidenced a sound and wide knowledge dealing with plant names and uses. In cases in which medical advice was not available, some specific categories of diseases have been understood as inadequate for diagnosis and treatment within the formal academic health care system; these are consulted with healers, which very often advise herbal remedies (SÁENZ-GUALLAR, 1984).

The influence of the Ancient Greco-Roman and Arab treatises of medicine and herbals can be traced through much of the current recipes. Specially relevant is the parallelism in the medicinal use of herbs and spices, which were one of the panaceas in the Arab Spain. This Medieval tradition explained connections between food and medicine, in the XIIth century, by synonymizing drugs and medicinal foods, which were both opposed to the poisons or substances producing strong alteration in the organism after digestion (VÁZQUEZ, 1987).

The Mediterranean traditional health care system covers several subsystems ranging from the widely diffused house-wifes' repertories of herbs to the specialized practices of healers and herbalists. The food plants are used in the whole of the system. The importance of this group of plants is higher in the familiar level. Herbalists usually sell only the unusual parts of the edible plants and the species rarely eaten. Very often, the same stall-holder displays among the medicinal species a lot of herbs and spices for culinary purposes (OBÓN & RIVERA, 1991, SÁENZ-GUALLAR, 1982*b*).

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The ordinary diet of peasants in Mediterranean Spain, during centuries and until recent times, depended extremely on the foods locally available and, very often, was composed by bread, potatoes, or corn flour, with, less frequently, cod, sardines or bacon. Vegetables were scarce, available only from the irrigated fields which were restricted to the valleys. In some places were added to the diet pulses, and some scarce fruits (SÁENZ-GUALLAR, 1982*a*, MATEOS, 1990). Commonly the diet was poor in proteins of animal origin. Connections between this diet and epidemics of diseases have been discused by several authors. The high frequency of human neurolathyrism among peasants of Central Spain inmediately after the World War II, a disease of the nervous system, was explained as being produded by a diet extremely dependent on "guijas" or "almortas" (seeds of *Lathyrus sativus* L.).

The use of plant foods as medicines in Mediterranean Spain is relevant in the local traditional health care system, since about 25% of the medicinal taxa are food plants or spices (Table 1). Several approaches can be choosen for the study of medicinal plants and foods. The specific relevance, reflected in terms of frequency in the diet of the species, and remarks about refused parts of edible plants which are used for medicine, allows to discriminate the following five categories:

1. Plants which are used mainly in medicinal prescriptions, but which are sometimes eaten, in case of starvation.

2. Plants widely used as food, but with some organs usually uneaten which are actually used in medicinal prescriptions as curative.

3. Plant Foods, employed in medicinal prescriptions in a different way as the usual procedures for food. Normally applied after diagnose of sickness.

4. Plant Food used in dietetic prescriptions, or even known as healthful. Very often are recommended as preventives for cyclic diseases and regularly included in the diet.

5 Herbs and spices employed as a medicine. Used as preventive or as remedy.

Plants which are chiefly used as medicinal, and only occasionally are eaten

Many wild species, which are only gathered in cases of starvation, when other foods become unavailable, belong to the *Urticaceæ* (*Urtica* sp. pl.), *Polygonaceæ* (*Rumex* sp. pl.) or *Chenopodiaceæ* (*Atriplex, Beta, Chenopodium,* sp. pl.). These species are disregarded in the diet, and are rarely found sold in the markets, but, if so, they are sold only for their medicinal properties. Reversely other wild plant products, like the rachis of tender leaves from *Scolymus hispanicus* and *Silybum marianum* or the bladder campion (*Silene vulgaris* L.) are taken as a delicacy. When available in the markets these are extremely expensive, but rarely used in medicine.

The stinging nettles (*Urtica urens* L.) were advised as a vegetable for winter season by ARNAU DE VILANOVA (XIIIth century) (BATLLORÍ, 1947) and are used as a blood depurative, antidiabetic, hair restorer, corn-salve, for diseases of the urinary tract, antiinflammatory, for coughs, sore throat and colds (OBÓN & RIVERA, 1991, PALACÍN *et al.*, 1984). Leaves of *Rumex acetosa* L. are taken as a diuretic, while those of *R. crispus* L. are taken as emollient and laxative, and those of *R. induratus* are reputed as useful for poor appetite (GONZALEZ-TEJERO, 1989).

The pericarps of *Malva sylvestris* L. are known as "panecillos" and eaten by the children, but the major uses of this species are as an emollient and a remedy for cough and cold. Fruits of *Rosa canina* L. sometimes are eaten, or, more frequently, used as apperitive, antianemic, or for kidney troubles (OBÓN & RIVERA, 1991).

Plants used widely as a food, but with some organs, usually uneaten, which are actually employed as a medicine

These organs are very often sold in the markets for their specific medicinal purpose, this is the case for the corn styles, cherry pedicels, orange peels or the empty dried pods of *Phaseolus* sp. pl. In fact people actually do not take care of

Table 1

Percentage of food plants and spices in the Medicinal Flora of Murcia, Granada, Huesca & Castellón (After Obón & Rivera, 1991, González-Tejero, 1989, Villar *et al.*, 1992, Mulet, 1991).

Uses	Murcia	Granada	Huesca	Castellón
Food and medicine	16.66	21.42	18.64	13.39
Spice or culinary herb and medicine	9.25	7.14	6.21	5.74
Medicine with no food interest	74.07	71.42	75.14	75.86
Total of species	108	238	354	348

preserving these parts, which are refused during the food procesing at home, and prefer to buy them when necessary. Other organs, like roots or branches are unavailable in the markets and their uses are restricted to the local availability of the plant in the fields.

The roots of *Juglans regia* L. are used for toothache, the leaves (which can be found sold in some markets) for diabete, and for washing sores, for diseases of the urinary tract and for uterine troubles (OBÓN & RIVERA, 1991), roots of *Prunus dulcis* (Miller) D.A. Webb are used as a depurative and antidiabetic (Gonzalez-Tejero, 1989). Roots of *Cucumis melo* L. are used as antirheumatic (GONZALEZ-TEJERO, 1989).

The branches of the pinion pine (*Pinus pinea* L.), whose seeds are edible, have been applied in a magical way to the people suffering of measles. This use derived by a transference from a similar use of another plant (*Artemisia arborescens*), which is unedible, but which holds an strong magical reputation. This is grown about the country houses, being known as "doncel", the same common name used for the pinion pine (OBÓN & RIVERA, 1991). Decoctions of the branches and leaves of *Rubus ulmifolius* Schott have been applied for toothache and as antidiabetic (OBÓN & RIVERA, 1991).

Tomato leaves are used as diuretic in gall bladder diseases and as a depurative (PALACÍN *et al.*, 1984). The leaves and flowers of *Eryobotria japonica* (Thunb.) Lindley are used for whooping cough, sore throat, measles and colds (GONZALEZ-TEJERO, 1989). The leaves of *Corylus avellana* L. are used as a regulator of the urinary function (GONZALEZ-TEJERO, 1989). Actually these are widely used in commercial herbal mixtures. The olive (*Olea europæa* L.) leaves are used as antidiabetic, hypotensive, antirheumatic and externally applied for erysipela (OBÓN & RIVERA, 1991). The hypotensive use of olive leaves is extremely important in most of the area and can be related with its ancient fame as a depurative (PALACÍN *et al.*, 1984; SÁENZ-GUALLAR, 1984; VILLAR *et al.* 1992). The leaves and milky sap of the fig tree (*Ficus carica* L.) were mediaeval remedies for haemorrhoids, according to ARNAU DE VILANOVA, and are externally applied for warts (OBÓN & RIVERA, 1991). The medieval use has been detected recently among peasants of Central Spain (Manchuela, Albacete). The granate leaves (*Punica granatum* L.) are externally applied for warts (OBÓN & RIVERA, 1991).

Flowers of *Opuntia ficusbarbarica* A. Berger are used in Murcia (ALCAZAR *et al.* 1990, OBÓN & RIVERA, 1991) as a diuretic for renal colic or general diseases of the urinary tract. The stems after roasted are externally applied in cases of colds and coughs. The juice obtained from the squeezed cladodes and fruits is used for whooping cough (OBÓN & RIVERA, 1991). The infusions made with "azahar" flowers, from lemon and orange trees (*Citrus limon* L., *C. sinensis* Osbeck, *C. aurantium* L.), are used as a sedative and sometimes in remedies for colds (OBÓN & RIVERA, 1991).

The pericarps and leaves of *Juglans regia* L. are used as blood depurative, in a similar manner are also used those of *Prunus dulcis* (PALACÍN *et al.*, 1984). The hair-like styles of *Zea mays* L. are used as a diuretic for diseases of the urinary tract, and in the preparation of eye drops (OBÓN & RIVERA, 1991, SÁENZ-GUALLAR, 1982b). Pedicels of *Prunus avium* (L.) L. fruits are reputed as a diuretic and a remedy for gall bladder diseases (GONZALEZ-TEJERO, 1989). The dried pods of *Phaseolus vulgaris* L. are used as antidiabetic in Murcia (ALCAZAR *et al.* 1990), or as antirheumatic in Albacete. The infusions of orange peels (*Citrus sinensis* Osbeck, *C. aurantium* L.) have been used for treating colds. Lemon peels were the base of a mixture named "diacitron", remedy for a wide range of diseases (VILANOVA, 1495). Rinds of pome-granate (*Punica granatum* L.) are used as anthelmintic (OBÓN & RIVERA, 1991).

Plant foods applied for medicine in a different way as the usual procedures for food preparation

The onions (*Allium cepa* L.) are externally applied for warts, roasted with salt and olive oil, whilst when boilt with sugar are used for colds (OBÓN & RIVERA, 1991). BONET (1993) recorded the use of an onion, put on the bedside table, to aleviate the nocturne cough of smokers.

Decoctions of celeri (*Apium graveolens* L.) are used in poultices for strokes (GONZALEZ-TEJERO, 1989). The raw leaves of *Borago officinalis* L., recommended in case of constipation by ARNAU DE VILANOVA, are chewed for liver diseases (GONZALEZ-TEJERO, 1989) or in antitussive or expectorant decoctions (BONET, 1993). Decoctions of *Cynara cardunculus* L. are used for dysentery and those of *Cynara scolymus* L. for liver diseases, high cholesterol levels, and as antidiabetic (GONZALEZ-TEJERO, 1989).

Teguments of the beans have been used as a diuretic in Albacete (LOZANO, 1989). The barley seeds (*Hordeum vulgare* L.) macerated in vinegar are used as a remedy for rheumatism. The decoction of red coloured corn varieties (*Zea mays* L.) is applied as a febrifuge (OBÓN & RIVERA, 1991), decoction of *Secale cereale* L. spikes is used for colds (GONZALEZ-TEJERO, 1989). The raw fruits of *Celtis australis* L. are used as hemostatic (OBÓN & RIVERA, 1991). The fruits of cucumber (*Cucumis sativus* L.) are used to prepare an stomachic liquor (GONZALEZ-TEJERO, 1989). Water in which were previously macerated sliced fruits of *Solanum melongena* L. is used for depressing high cholesterol levels (GONZALEZ-TEJERO, 1989). The carobs, *Ceratonia siliqua* L., are used in decoctions for treating constipation, or for colds and coughs,

these are also externally applied for warts (OBÓN & RIVERA, 1991). The dried figs are used in poultices for treating digestive troubles and syrups for coughs and colds (OBÓN & RIVERA, 1991).

The lemon juice (*Citrus limon* L.) is externally applied as a cleansing agent, for acne or internally used for cough and colds (OBÓN & RIVERA, 1991).

The olive oil is externally applied for treatment of haemorrhoids, also as a hair preserver or for amygdala inflammations (OBÓN & RIVERA, 1991). It also is involved in many recipes as a vehicle for other medicinal products.

Plant foods used in dietetic prescriptions, or traditionally known as healthful

Medieval Spanish treatises of medicine and herbals comprised lists of healthful foods. These lists included plant products like: wheat, bread, figs, grapes, lattuce, pears. Medical writters remarked the medicinal properties of barley, olive oil, wine. Explicitly were considered unhealthy most of the fruits and vegetables known at this time (apricots, cabbages, cucumbers, dates, egg-plants, garlic, onions, peaches, plums). Nuts were widely recognized as harmful with the only exceptions of almonds and pistacio fruits (BATLLORI, 1947; FERRE, 1991; VÁZQUEZ, 1987).

The contemporary list of plant foods widely recognized as healthful by the common people is extremely reduced, and similarly happens for the list of harmful ones.

Carrots are recommended in diets for improving the sense of sight (GONZALEZ-TEJERO, 1989, 1992). Roots of *Raphanus sativus* L. are used as a diuretic and for whooping cough (GONZALEZ-TEJERO, 1989). Raw onions are traditionally eaten as aperitive, or, acompanying heavy meals as a digestive (OBÓN & RIVERA, 1991) ARNAU DE VILANOVA (XIIIth century) recommended the use of fried sliced onions for softening pulses when cooking (BATLLORI, 1947). Onions are also reputed as analeptic, anthelminthic and used for colds and influenza (GONZALEZ-TEJERO, 1989).

The salad made with *Cichorium intybus* L. leaves has been used as aperitif (OBÓN & RIVERA, 1991). The rich in celery (*Apium graveolens* L.) diet has been advised as a diuretic, antirheumatic and for reducing uric acid levels.(OBÓN & RIVERA, 1991, GONZALEZ-TEJERO, 1989).

Tomatos (*Lycopersicon esculentum*) are reputed as a laxative (LOZANO, 1989). The tuna figs (*Opuntia ficusbarbarica* Berger) are used as an astringent in dysentery. Figs have been recomended as a laxative (OBÓN & RIVERA, 1991, GONZALEZ-TEJERO, 1989). The walnuts are reputed as antidiabetic (*Juglans regia* L.) (OBÓN & RIVERA, 1991). Chestnuts (*Castanea sativa* L.) are reputed as a sedative (GONZALEZ-TEJERO, 1989). Raw inmature pods of *Ceratonia siliqua* L. are used for dysentery (GONZALEZ-TEJERO, 1989), mature pods are a laxative (AGUILA, 1988). Dried fruits of *Prunus domestica* L. are used as a laxative (GONZALEZ-TEJERO, 1989) in a similar way as it was recommended by ARNAU DE VILANOVA (1495).

Lemon juice is used as a digestive, and the orange juice as a mild laxative (OBÓN & RIVERA, 1991). The lemons eaten early in the morning, before any meal, daily over nine consecutive days in march, are reputed as a protective against every disease (PALACÍN *et al.*, 1984).

Lemon is reputed in Murcia as a panacea, for it is employed in treating a wide range of disorders and pains, like: toothache, cough and colds, respiratory troubles, stomach ache, wounds, open sores, high cholesterol levels, dysentery, circulatory system, rheumatism. It is also used as antispasmodic, for eye drops, for antiinfective skin preparations, and as a blood depurative (ANDREU *et al,* 1991). The medicinal use of the lemon juice can be traced back to the writtings of Maimonides in the XIITH century (FERRE, 1991).

Olive oil is claimed to balance the cholesterol levels in spite of the high inputs of animal fats (mainly from pigs) which are also a characteristic of the diet in the region. In fact this oil is reputed as a good vehicle for many medicinal recipes, also as purgative, laxative and stomachic. SÁENZ-GUALLAR (1982*a*) cites the famous novel *Cronica del Alba* of the well known writter R.J. SENDER: "El color de la piel de las gentes de esta tierra es mas diáfano y rosado porque toman mucho aceite de oliva, que es bueno para el hígado...". This text show how Spanish people explained a good aspect on the base of a rich in olive oil diet. In fact the medicinal fame of the Spanish olive oil can be traced back to the II century, in the *De sanitate tuenda* of Galen (ZARAGOZA, 1971).

Herbs and Spices used as a medicine

It is extremely important to underline the relevant role played by the *Labiatæ* in the herbal remedies of Mediterranean Spain (GONZALEZ-TEJERO *et al.*, 1992). Of the 559 uses recorded by GONZALEZ-TEJERO (1989) in the Granada province, the *Lamiaceæ* were found cited in 146, followed from afar by the *Asteraceæ* with 57 uses. In terms of the number of medicinal species the *Labiatæ* again are the first with 42 species, followed by the *Asteraceae* with 29 species, which is the second family in order of importance (Table 4). Most of these *Lamiaceæ* are at the simultaneously taken as flavouring agents.

Garlics are reputed as good for every illness "bueno pa tó". The garlic cloves are used as blood depurative, for jaundice, and externally applied for warts (OBÓN & RIVERA, 1991, PALACÍN *et al.*, 1984). The roots of several *Capparis* species,

Table 2
Secular evolution in the percentage of the major causes for mortality in a town of Central Spain: Torremenga (province of Caceres) (After Mateos, 1990).

Diseases	1860-1879	1960-1979
Digestive	14.01	3.63
Children	13.08	2.63
Infective diseases	1.86	–
Respiratory	9.34	9.09
Vascular-circulatory	3.73	35.40
Tumours	–	16.36
Senile	2.80	18.18

wild and cultivated are used in Murcia and Granada for the toothache, or for washing sores, or as a diuretic, and as antirheumatic (OBÓN & RIVERA, 1991, GONZALEZ-TEJERO, 1989).

Decoction of cinnamon bark (*Cinnamomum zeylanicum* Garc. ex Blume) is used for colds (GONZALEZ-TEJERO, 1989).

Basil leaves (*Ocimum* sp.) are used as digestive, carminative and for preparying eye drops. Dill leaves (*Anethum graveolens*) are used for the same purpose (CANICIO, 1987). The leaves of *Ruta chalepensis* L. are used for toothaches, digestive troubles, aperitif, for cleaning open sores, menstrual disorders, antiinfective skin preparations, antirheumatic, or eye drops (OBÓN & RIVERA, 1991). Thyme (*Thymus vulgaris* L.) is used as digestive, for stomach ailments, toothache, as hypotensive, for high levels of cholesterol, for dermatitis, as a hair restorer, for kidney troubles, antiinflammatory, febrifuge, for coughs and sore throat (OBÓN & RIVERA, 1991). Some healers of Southern Aragón (province of Teruel) recommend to their patiens to take thyme as a purgative for expulsing the drugs which could interfere with their cure, these healers also atributed diuretic and depurative properties to the thyme (SÁENZ-GUALLAR, 1984). The leaves of savory (*Satureia obovata* Lag.) are used for stomach ailments, toothache, apperitive, digestive, for kidney troubles (OBÓN & RIVERA, 1991). The bay leaves (*Laurus nobilis* L.) are used as a apperitive, digestive, also for menstrual and nervous disorders (OBÓN & RIVERA, 1991). The several mint species (*Mentha* sp. pl.) are used as digestive, dermatologics, antirheumatics, sedatives, vermifuges, anthelmintic and for sore throat (OBÓN & RIVERA, 1991).

The fruits of *Capsicum* sp. pl. are used as antirheumatic or for improving the affluence of blood (GONZALEZ-TEJERO, 1989). The seeds and fruits of fennell (*Fœniculum vulgare* L.) are widely used for digestive troubles, blood depurative, menstrual disorders, coughs, and in the preparation of eye drops. The medicinal reputation of this species, is probably responsible of its use as a flavouring agent of local alcoholic drinks, known as "aníses" or "anisados", in which also are involved *Pimpinella anisum* L., and sometimes *Ruta* and/or *Artemisia* species (OBÓN & RIVERA, 1991, RIVERA & OBÓN, 1991). The rosemary (*Rosmarinus officinalis* L.) is used for digestive troubles, for the circulatory system, as dermatologic, as antirheumatic, hypotensive, febrifuge, for coughs and colds (OBÓN & RIVERA, 1991, BONET *et al.*, 1992).

Table 3
Relevance of the major groups of diseases, represented in terms of relative abundance of herbal remedies (recipes) in Granada, Castellón, Huesca & NW Murcia (After González-Tejero, 1989, Mulet, 1991, Villar *et al.*, 1992, Rueda & Ibernón, 1988).

	Granada	Castellon	Huesca	Murcia
Digestive	20.17	13.94	19.11	20.40
Metabolism	4.16	4.74	5.44	3.67
Mouth	4.87	0.89	4.08	7.34
Respiratory	13.57	13.35	11.83	14.69
Anti-infective	2.89	5.04	5.11	5.71
Febrifuge	1.34	1.18	1.87	6.53
Circulatory	8.87	13.94	10.52	5.30
Genito-urary	10.64	6.52	10.28	9.79
Nervous	4.40	0.89	4.03	4.48
Analgesic	3.30	0.29	3.14	6.53
Skin	23.11	30.86	17.05	14.28
Antirheumatic	3.50	8.30	7.37	5.30

DISCUSSION

Herbal remedies have been used not only for relieving common but unimportant diseases, still for the serious ones. The relative importance of major groups of acute diseases, and their evolution in the last century, can be traced through the study of the statistics recording the major causes for mortality. (An example taken from Central Spain is shown in Table 2). This different importance of disases, can be compared with the relative importance and abundance of herbal remedies (Table 3). The available herbal remedies correspond only partly with the contemporary health care system and with the frequency of diseases in the same moment. Comparisons made between Table 2 and 3 show that the present repertory of herbal remedies is extremely influenced by the past, and, in some aspects, it is retrospective or conservative. For instance, the digestive diseases caused, a century ago, a higher mortality than in the present day; however the digestive herbal repertory remains today as the most significant group in the present records for herbal remedies. This can be also interpreted, in a different way, as a consequence of the high frequency of unimportant digestive upsets which are near exclusively treated with herbal remedies. The group of skin disorders is extremely relevant among the collections of recipes, accounting for a high percentage of the total recorded. These problems are nevertheless slight but extremely frequent.

Modern diets show a raised intake of proteins from animal origin, and, also, a higher consumption of fresh fruits, because of their availability in every time of the year. The vascular diseases increased their relevance as a cause for mortality (Table 2). This is explained very often as a consequence of this change in dietary habits. At the same time a wider use of herbal remedies reputed as hypotensive or hypocholesteremiant or even as blood depuratives, has been detected in the recent studies in Mediterranean Spain. Most of these uses were adaptations of the ancient depuratives, which are actually explained, by the common people, using a terminology taken from the jargon of the socialized health care system: good for high blood pressure, good for high cholesterol levels. Plants containing bitter substances are very often recommended for cholesterol and diabetes.

The relevance of the food plants in the whole of the Medicinal Flora can be summarized in percentage of the number of species (Table 1). Approximately a 25% of medicinal taxa are related with the diet because these are food or flavouring agents.

The actual medicinal influence of food plants in the ethnopharmacology of the zone has been partly concealed because of the relatively low diversity of food plants in the area. Also the biassed methodology of research, which has been focused mainly towards the discovery of rare or endemic medicinal species, not included in the pharmacopeas, disregarded the extremely frequent use of food plants in medicinal recipes. The traditional flavouring agents in the Mediterranean cuisine are extremelly difficult to separate of their medicinal uses, because very often these are employed in order to obtain healthful meals, following roman and medieval traditions. For instance: Although the book of Apicius (PASTOR, 1986) furnishes a few reference to medicine or health, most of the flavouring agents cited, were widely understood by the Roman as medicinal. The Gastronomic texts of the Arab Spain, are extremely rich in references to health. Many recipes are proposed as preventive for particular diseases or in a more general way cited as "healthy", while other are specifically recommended as curative (HUICI-MIRANDA, 1966, BOLENS, 1992). This tradition was followed by Herrera (1981), in the XVITH century, who recorded many medicinal uses of every cultivated plant, most of them food or herbs and spices.

Table 4

Number of medicinal taxa belonging to the major families of plants in Castellón, Granada, Murcia & Huesca (After Mulet, 1991; González-Tejero, 1989; Rivera, Obón, Selma, Cano and Arenas (ined.); Villar *et al.*, 1992.

Family	Castellón	Granada	Murcia	Huesca
Labiatæ	43	40	55	37
Compositæ	39	29	39	66
Rosaceæ	24	12	16	34
Leguminosæ	19	14	17	25
Liliaceæ	12	8	12	21
Graminaceæ	11	11	12	17
Umbelliferæ	11	8	15	20
Solanaceæ	9	6	9	11
Cruciferæ	8	6	5	16
Caryophyllaceæ	7	7	9	18
Ranunculaceæ	4	–	1	17
Rubiaceæ	6	–	2	14

CONCLUSIONS

Food plants play a major role between the preventive remedies through nutritional habits known as healthful (rightly or not) but are also a significant part in the curative repertory.

Olive oil, garlic and lemon are the local products most widely known as healthful and whose medicinal uses are extremely frequent.

Table 5

Similarities between the medicinal uses of selected spices and herbs, as reported by the Medieval texts and by the recent ethnobotanical records in Mediterranean Spain (After Vázquez, 1987 (1); González-Tejero, 1989 (2); Batllorí, 1947 (3); Vilanova, 1495 (4); Leclerc, 1877-83 (5); Mulet, 1991 (6); Bonet, 1993 (7); Laza, 1940 (8); Faraudo, 1943 (9); Villar *et al.*, 1992 (10); Ferre, 1991 (11); Carril, 1991 (12).

	Medieval indications	*Ethnobotanical indications*
Spices		
Cinnamon	antidote (9), digestive (5), diuretic (9), expectorant (5), hepatoprotective (9), laxative (1), somnifacient (9)	antiseptic (10), digestive (10), for colds (2), febrifuge (6), for toothache (10)
Clove	hepatoprotective (9), laxative (1), nervous disorders (11), stomachic	insect repellent, for toothache (12)
Nutmeg	carminative (9), hepatoprotective (9), stomachic (4, 9)	for jaundice (10)
Pepper	carminative (5), digestive (5, 9), for nervous disorders (5, 9), stomachic (5, 9)	for relieving pains of childbirth (10)
Saffron	antiinflammatory (9), digestive (3, 5, 9), stomachic (9)	antiinflammatory (6, 7), emmenagogue (6), stomachic (6)
Herbs		
Coriander	astringent (5), haemostatic (5), stomachic (5)	
Cumin	antidote (9), astringent (5), carminative (9), diuretic (9), hepatoprotective (5)	carminative (6, 10), digestive (6)
Fennell	antidote (9), antiseptic (1), diuretic (9), febrifuge (5), remedy for jaundice (9), stomachic (5)	antiseptic (6), carminative (6, 7), diuretic (6), expectorant (6), hypotensive (6), laxative (7), remedy for colds (6), stomachic (6)
Garlic	antidote (9), carminative (9), diuretic (9) expectorant (9), vermifuge (9)	antirheumatic (7), expectorant (8), hipotensive (8), vermifuge (7)
Liquorice	antiseptic (1), antitussive (5), emollient (5), expectorant (5), hepatoprotective (5), laxative (11), stomachic (4)	antitussive (7), expectorant (6, 10), for poor appetite (12), lithotritic (6), remedy for cools (6, 10), stomachic (6)
Peppermint	antidote (5), antiemetic (5, 9), stomachic (5)	antiemetic (7), antiinflammatory (7), stomachic (6, 7)
Sage	emmenagogue (9), for improving memory (3)	analgesic (6), antidote (6), antirheumatic (10), antiseptic (6, 10) antitussive (10), depurative (6, 10), digestive (6, 10, 12), emmenagogue (6), hypotensive (6, 10), laxative (6, 10), remedy for colds (10), stomachic (10), tonic (6)

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