

LABIATAE CHECKLIST FOR ANDALUSIA (SOUTHERN SPAIN) AND THE RIF (NORTHERN MOROCCO)

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ABSTRACT. *Labiatae checklist for Andalusia (Southern Spain) and the Rif (Northern Morocco).* The taxa of Labiatae from Andalusia (Southern Iberian Peninsula) and the Rif (Northern Morocco) are included in a checklist, which has about 262 taxa, belonging to 28 genera and 5 subfamilies, representing almost 25% of total Mediterranean Labiatae taxa and c. 70% of total strict Labiatae Mediterranean genera. *Nepetoideae* with 17 genera is the richest subfamily; *Ajugoideae* (*Ajuga* genus), *Teucroideae* (*Teucrium* genus) and *Scutellarioideae* (*Scutellaria* genus) are monogenerics. In this biogeographical region, 23 genera and about 70 species are common to both Andalusia and the Rif (about 88% of all genera and 30% of all taxa). *Teucrium*, *Sideritis Satureja* and allied genera, *Salvia* and *Mentha*, are the most widespread, representing almost 50% of the total taxa. The importance of the Labiatae family in the Andalusia and the Rif regions is reflected by the fact that they make up c. 20% of all taxa, while 25 of the total number of genera are distributed in the Betic-Rif Mountains. In addition, these mountains, are themselves the richest and best endowed regions of the Andalusia and the Rif, with the greatest concentration of endemic species (c. 65% of total endemisms).

Key words. Labiatae, checklist, biogeography, Betic-Rif Mountains, Andalusia (Southern Iberian Peninsula), Rif (Northern Morocco).

RESUMEN. *Labiatae de Andalucía (Sur de la Península Ibérica) y el Rif (Norte de Marruecos).* Se presenta una lista de los táxones de la familia Labiatae de Andalucía (sur de la Península Ibérica) y del Rif (norte de Marruecos), que incluye alrededor de 262 táxones pertenecientes a 28 géneros y 5 subfamilias, representando c. del 25% del total de las especies y c. del 70% de los géneros de la familia Labiatae en el Mediterráneo. *Nepetoideae*, con 17 géneros, es la subfamilia más ampliamente representada. *Ajugoideae* (género *Ajuga*), *Teucroideae* (género *Teucrium*) y *Scutellarioideae* (género *Scutellaria*) son monogénicas. Un total de 23 géneros y cerca de 70 especies son comunes para Andalucía y el Rif (c. 88% del total de géneros y c. 30% del total de taxones). *Teucrium*, *Sideritis*, *Satureja* y géneros afines, *Salvia* y *Mentha*, son los más ampliamente distribuidos y, en su conjunto, representan más del 50% del total de táxones. Las montañas Bético-Rifeñas constituyen el territorio biogeográfico de más riqueza florística de la familia Labiatae en Andalucía y el Rif, estando representados en ellas más del 20% del total de los taxones y 25 del total de los géneros, es así mismo, la región que concentra más número de especies endémicas (c. 65% del total de endemismos).

Palabras clave. Labiatae, checklist, biogeografía, Montañas Bético-Rifeñas, Andalucía (sur de la península Ibérica), Rif (norte de Marruecos).

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INTRODUCTION

This checklist aims to present a general and practice synthesis of the current nomenclature, taxonomic consensus and biogeographical regional distribution of Labiatae for the Andalusia and the Rif regions. The checklist comprises an inventory of taxonomically validated Labiatae plant names and main biogeographical distribution together with a selection of the relevant literature for individual genera.

MATERIAL AND METHODS

Taxonomic names and synonyms, together with biogeographical distribution were recorded from standard floras, monographs, revisions, shorts publications and other relevant bibliographical sources, which are arranged alphabetically in the bibliographical annexes. Taxonomic databases from the BC, MGC, MPU and RAB, herbaria and field collections were also used. All accepted taxa including endemic species and the better known synonyms are included, along with biogeographical distribution, life forms and ecological comments.

The nomenclature of infra-family arrangements follows Cantino *et al.* (1992).

The names of genera and their species and infraspecific taxa are listed alphabetically. The place and date of publication of all names are given. The terminology for life-forms is based on the system of Raunkjær (1905) with additional categories as necessary.

Biogeographical distribution usually follows the general floristic regions proposed by Takhtajan (1986). The geographical range covered is the Andalusia region in the South of the Iberian Peninsula and the Rif in the Northern Morocco (fig. 1). For the regional distribution, six natural biogeographical-floristic areas are recognized: "Atlantic littoral", corresponding

to the Atlantic coasts of SW Andalusia and NW Morocco; "Guadalquivir, Loukkos and Sebou Valleys", comprising the Guadalquivir valley in W Andalusia and the Loukkos and Sebou valleys in N Morocco; "Algeciras-Tanger", including the Algeciras area from Andalusia and the Tanger area from Morocco; "Betic-Rif Mountains", comprising the Betic Mountain systems from E & C Andalusia and the Rif Mountain system from N Morocco; "Cabo de Gata-Nkor-Nador" corresponding to the Cabo de Gata region and surrounding thermic coastal areas of SE Andalusia and the Nkor-Nador region of NE Morocco, and, finally, the Sierra Morena, a particular area of N Andalusia. The delimitation of these biogeographical-floristic areas mainly follows Valdés (1991) and also Galán de Mera & Orellana (1996), Pérez la Torre *et al.* (1996), Cabezudo *et al.* (1997), Fennane & Ibn Tattou (1998) and Rivas Martínez & Loidi (1999). In practice, when a taxon is known on only one side of a specific division, only this side is mentioned, e.g.: "Algeciras" if present only in Andalusia or "Tanger" if present only in the Rif instead of "Algeciras-Tanger" when present in both sides.

RESULTS AND CONCLUSION

Checklist

1. Subfamily AJUGOIDEAE

1. *AJUGA* L., Sp. Pl.: 661 (1753)

1. *A. iva* (L.) Schreb., Pl. Verticill. Unilab.: 25 (1774)

Teucrium iva L., Sp. Pl.: 563 (1753)

a. subsp. *iva*

Mediterranean, Atlantic.

Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.

Open forest, grazing sites, dry grasslands, open matorral over calcareous and siliceous soils. Hemicryptophyte.

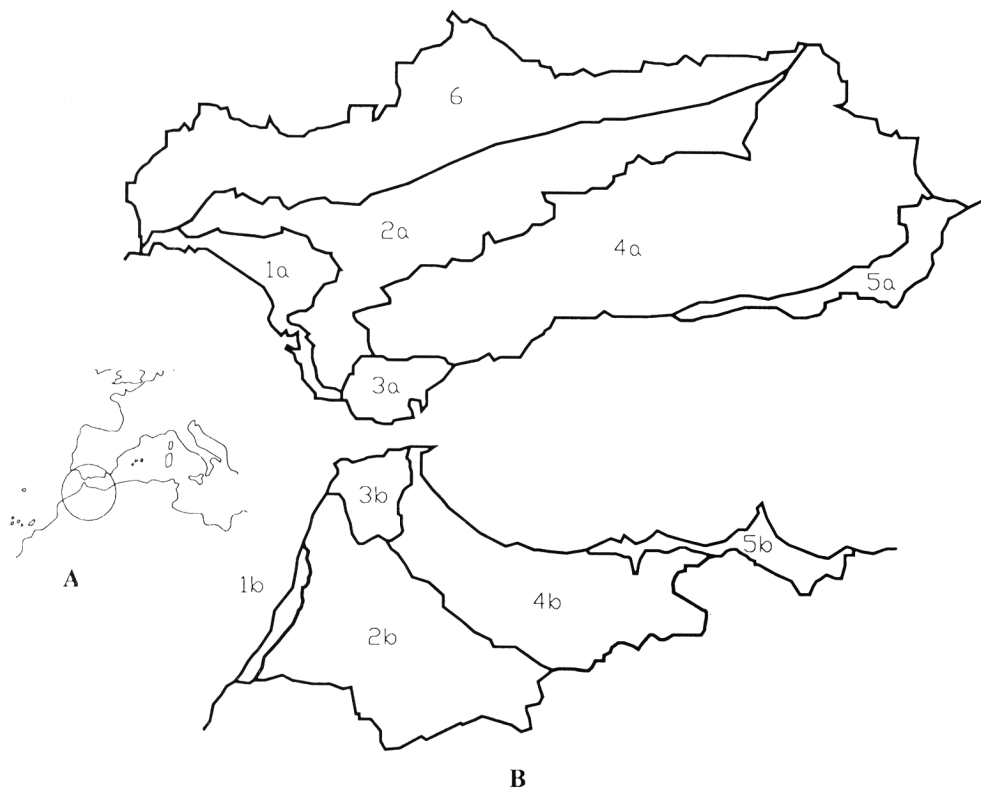


Figure 1. **A.** Geographical range covered in the study: the Andalusia region in the Southern of the Iberian Peninsula and the Rif in the Northern of Morocco. **B.** Regional distribution of six natural biogeographical-floristic areas recognized. **1:** Atlantic littoral, corresponding to the Atlantic coasts of SW Andalusia (a) and NW Morocco (b). **2:** Guadalquivir, Loukkos and Sebou Valleys, comprising the Guadalquivir valley in W Andalusia (a) and the Loukkos and Sebou valleys in N Morocco (b). **3:** Algeciras-Tanger, including the Algeciras area from Andalusia (a) and the Tanger area from Morocco (b). **4:** Betic-Rif Mountains, comprising the Betic Mountain systems from E & C Andalusia (a) and the Rif Mountain system from N Morocco (b). **5:** Cabo de Gata-Nkor-Nador, corresponding to the Cabo de Gata region and surrounding thermic coastal areas of SE Andalusia (a) and the Nkor-Nador region of NE Morocco (b) and , **6:** The Sierra Morena, a particular area of N Andalusia. The delimitation of these biogeographical-floristic areas mainly follows Valdés (1991), Galán de Mera & Orellana (1996), Pérez la Torre *et al.* (1996), Cabezudo & *al.* (1997), Fennane & Ibn Tattou (1998) and Rivas Martinez & Loidi (1999).

b. subsp. *pseudoiva* (Robill. & Cast. ex DC.) Briq., Lab. Alpes Mar.: 112 (1891)

A. pseudo-iva Robill. & Cast. ex DC. in Lam. & DC., Fl. Fr., ed. 3,5: 395 (1815)

W Mediterranean, Atlantic.

Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.

Open forest, low matorral, grazing sites, over calcareous and siliceous soils. Hemicryptophyte.

2.A. *chamaepitys* (L.) Schreb., Pl. Verticill. Unilab.: 24 (1773)

Teucrium chamaepitys L., Sp. Pl.: 562 (1753)

subsp. *chamaepitys*

Mediterranean, C Europe, Persia, Caucasus.

Atlantic littoral, Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata region.

Open matorral over calcareous soils. Disturbed, rocky and arid sites. Spring therophyte.

2. Subfamily LAMIOIDEAE

1. *BALLOTA* L., Sp. Pl.: 582 (1753)

1. *B. hirsuta* Benth., Labiat. Gen. Sp.: 595 (1834)

a. subsp. *hirsuta*

B. hispanica auct., non Benth.

W Mediterranean.

Guadalquivir valley, Algeciras, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador, Sierra Morena.

Subnitrophilous, open forest, montane and disturbed matorral, disturbed grasslands, grazing sites. Chamaephyte.

b. subsp. *intermedia* (Batt.) Patzak, Ann. Naturhist. Mus. Wien 63: 60 (1959)

B. hirsuta f. *intermedia* Batt. in Batt. & Trabut, Fl. Algérie 1: 702 (1890)

Sebou valley; Zerhoun.

North Africa.

Open forest, rocky sites, middle and montane matorral. Chamaephyte.

c. subsp. *maroccana* (Murb.) Patzak, Ann. Naturhist. Mus. Wien 63: 59 (1959)

B. acuta var. *maroccana* Murb., Acta Univ. Lund. 34(7): 38 (1898)

Endemic to Morocco.

Sebou valley.

Open forest, rocky sites, middle and montane matorral. Chamaephyte.

2. *B. nigra* L., Sp. Pl.: 582 (1753)

a. subsp. *foetida* Hayek, Repert. Spec. Nov. Regn. Veg. Beth. 30 (2): 278 (1929)

Mediterranean, Atlantic, SW Asia.

Betic Mountains, Cabo de Gata region.

Montane, discontinuous and disturbed matorral over calcareous soils, grazing sites. Chamaephyte.

b. subsp. *uncinata* (Fiori & Bég.) Patzak, Ann. Naturhist. Mus. Wien 62: 64 (1958)

B. nigra f. *uncinata* Fiori & Bé in Fiori & Paol., Fl. Italia 3: 39 (1903)

Europe, W Asia, Atlantic, North Africa.

Algeciras-Tanger, Loukkos and Sebou valleys, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador. Nitrophilous, cultivated and disturbed areas. Chamaephyte.

2. *GALEOPSIS* L., Sp. Pl.: 579 (1753)

1. *G. angustifolia* Hoffm., Deutschl. Fl. ed. 2, 2: 8 (1804)

G. ladanum subsp. *angustifolia* (Hoffm.) Celak., Prod. Fl. Böhmen: 839 (1881)

W, C & S Europe.

Betic Mountains.

Montane matorral. Therophyte.

3. *LAMIUM* L., Sp. Pl.: 579 (1753)

1. *L. amplexicaule* L., Sp. Pl.: 579 (1753)

Mediterranean, Atlantic, SW Asia.

All Andalusia and Rif regions.

Uncultivated and disturbed areas, grazing sites, open forest and matorral, disturbed grasslands. Spring therophyte.

2. *L. flexuosum* Ten., Fl. Napol. 1, Prod.: 34 (1811-1815)

L. berenguerei Pau, Mem. Real. Soc. Esp. Hist. Nat. 12: 378 (1924)

W Mediterranean.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains.

Humid sites, forest and grasslands. Hemicryptophyte.

3. *L. mauritanicum* Batt., Bull. Soc. Bot. France 43: 481 (1896)

L. amplexicaule subsp. *mauritanicum* (Batt.) Maire in Jahand. & Maire: 635 (1934)

NW Africa.

Algeciras-Tanger, Betic-Rif Mountains, Loukkos and Sebou valleys, Nkor-Nador region.

Cultivated areas, nitrophilous. Hemicryptophyte.

4. *L. purpureum* L., Sp. Pl.: 579 (1753)

Mediterranean, SW Asia, Europe, Atlantic.

Guadalquivir valley, Algeciras, Betic Mountains, Cabo de Gata region, Sierra Morena.

Grasslands, disturbed matorral, humid sites. Hemicryptophyte.

4. *MARRUBIUM* L., Sp. Pl.: 582 (1753)

1. *M. alyssoides* Pomel, Bull. Soc. Sci. Phys. Algérie 11: 120 (1874)

North Africa.

Nkor-Nador region.

Steppes, grazing and arid sites. Chamaephyte.

2. *M. alysson* L., Sp. Pl.: 582 (1753)

Mediterranean.

Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.
Steppes, grasslands, grazing and rocky sites.
Chamaephyte.

3. *M. echinatum* Ball, J. Bot. 13: 175 (1875)

Endemic from Morocco.

Sebou and Loukkos valleys.
Low matorral. Chamaephyte.

4. *M. fontianum* Maire, Bull. Soc. Hist. Nat. Afr. N. 24: 226 (1933)

Endemic to Morocco (Rif).

Rif Mountains.
Rocky forest over calcareous soils. Chamaephyte.

5. *M. heterocladum* Emb. & Maire, Pl. Rif. Nov. 1: 9 (1927)

Endemic to Morocco (Rif).

Rif Mountains.
Montane *Quercus* and *Cedrus* forests. Nitrophilous,
grazing sites, cultivated and uncultivated areas.
Chamaephyte.

6. *M. supinum* L., Sp. Pl.: 583 (1753)

Endemic to the Iberian Peninsula.

Betic Mountains.
Open matorral and disturbed areas. Chamaephyte.

7 *M. vulgare* L., Sp. Pl.: 583 (1753)

M. ballotoides Boiss. & Balansa in Boiss., Diagn. Pl. Orient. ser. 2, 4: 53 (1859)
Mediterranean, Europe, SW Asia, Atlantic.
All Andalusia and Rif regions.
Disturbed matorral, grasslands, rocky and grazing sites. Chamaephyte.

5. *PHLOMIS* L., Sp. Pl.: 584 (1753)

1. *P. composita* Pau, Bol. Soc. Aragon. Ci. Nat. 17: 132 (1918) (pro-hybr.)

Endemic to the Iberian Peninsula.
Guadalquivir valley, Betic Mountains.
Montane matorral over rocky calcareous soils.
Nanochamaephyte.

2. *P. crinita* Cav., Icon. 3: 25 (1975)

a. subsp. *crinita*

Iberian Peninsula.
Betic Mountains.
Rocky hills over calcareous soils. Nanochamaephyte.

b. subsp. *malacitana* (Pau) Cabezudo, Nieto Caldera & T. Navarro, Acta Bot. Malacitana 16 (2): 354 (1991)

P. crinita var. *malacitana* Pau, Mém. Mus. Ci. Nat. Barcelona 1(1): 64 (1922).
Endemic to the Iberian Peninsula (Andalusia).
Guadalquivir valley, Betic Mountains.
Montane matorral over rocky calcareous soils.
Nanochamaephyte.

c. subsp. *mauritanica* (Munby) Murb., Acta Univ. Lund., nov. ser. 1(4): 66 (1905)

P. mauritanica Munby, Fl. Algérie: 60 (1847)
North Africa.
Tanger, Rif Mountains.
Open forest, grazing and rocky montane sites over basic and acid soils. Hemicroptophyte.

3. *P. herba-venti* L., Sp. Pl.: 586 (1753)

P. herba-venti subsp. *pungens* (Willd.) De Filippis, Bot. J. Linn. Soc. 64: 233 (1971)

Mediterranean, SW Asia.
Atlantic littoral (Rif), Algeciras-Tanger, Guadalquivir, Loukkos and Sebou valleys, Betic-Rif Mountains, Nkor-Nador region.
Open montane matorral over basic soils.
Hemicroptophyte.

4. *P. lychnitis* L., Sp. Pl.: 585 (1753)

Circumboreal, W Mediterranean.
All Andalusian regions.
Uncultivated areas and disturbed matorral.
Nanochamaephyte.

5. *P. purpurea* L., Sp. Pl.: 585 (1753)

a. subsp. *purpurea*

P. purpurea var. *almeriensis* Pau, Mem. Mus. Ci. Nat. Barcelona, ser. Bot. I (3): 29 (1925)
Iberian Peninsula, North Africa.
All Andalusia regions, Tanger.
Calcareous and rocky montane and disturbed matorral. Chamaephyte frutescens.

b. subsp. *caballeroi* (Pau) Rivas Mart., Acta Bot. Malacitana 2: 61 (1976)

P. caballeroi Pau, Bol. Soc. Aragonesa Ci. Nat.

17: 132 (1918)
 Endemic to Morocco.
 Rif Mountains, Nkor-Nador region.
 Thermic and dry disturbed and coastal matorral.
 Chamaephyte.

6. PRASIMUM L., Sp. Pl.: 600 (1753)

1. *P. majus* L., Sp. Pl.: 601 (1753)
 W Asia, Europe, W Mediterranean.
 Atlantic littoral, Guadalquivir, Loukkos and Sebou
 valleys, Algeciras-Tanger, Betic-Rif Mountains,
 Cabo de Gata-Nkor-Nador, Sierra Morena.
 Calcareous hills, forest, rocky montane matorral.
 Hemicriptophyte.

7. SIDERITIS L., Sp. Pl.: 574 (1753)

1. *S. arborescens* Salzm. ex Benth., Lab. Gen. Spec.:
 579 (1834)

a. subsp. *arborescens*

S. lasiantha var. *arborescens* (Salzm. ex Benth.)
 Nyman, Syll. Fl. Eur.: 99 (1854-55)
 Endemic to the Iberian Peninsula.
 Guadalquivir valley, Algeciras, Betic
 Mountains, Cabo de Gata region.
 Coastal matorral over basic soils. Chamaephyte.

b. subsp. *ortonedae* (Font Quer & Pau) Maire,
 Bull. Soc. Hist. Nat. Afrique N. 19: 23 (1932)
S. arborescens var. *ortonedae* Font Quer & Pau
 ex Font Quer, Cavanillesia 3: 60-61 (1930); *S.*
romoi Peris, Stübing, Rosello & Cirujano,
 Anales Jard. Bot. Madrid 55 (2): 226 (1995); *S.*
arborescens subsp. *kebdanensis* Font Quer &
 Sennen in Sennen, Plantes d'Espagne n°8906
 (1933); *S. faurei* Obón & Rivera, Phan.
 monograph. 21: 422 (1994)
 Endemic to Morocco
 Rif Mountains, Nkor-Nador region.
 Hills and rocky matorral over calcareous soils.
 Chamaephyte.

2. *S. carbonellis* Socorro, Studia Botanica Salm. 1.
 21-23 (1982)

S. mansanetiana Stübing, Peris & Figuerola, Fedders
 Repert., 103: 5-6 (1992)
 Endemic to Andalusia.
 Betic Mountains.
 Montane calcareous matorral. Chamaephyte.

3. *S. flaviflora* Obón & Rivera, Phan. monograph.
 21: 447 (1994)

S. hirsuta var. *flaviflora* Font Quer & Cuatrec. in
 Cuatrec., Publ. Junta Ci. Nat. Barcelona 12: 401 (1929)
 Endemic to the Iberian Peninsula (Andalusia).
 Betic Mountains; Jaén province.
 Matorral over calcareous soils. Chamaephyte.

4. *S. gaditana* Rouy, Ill. Pl. Eur., 17: 137 (1902)
 Iberian peninsula and Morocco.

Betic Mountains, Guadalquivir valley, Algeciras.
 Montane matorral. Chamaephyte.

5. *S. glacialis* Boiss., Notice sur l'Abies pinsapo:
 12 (1938)

a. subsp. *glacialis*

S. scordioides var. *glacialis* (Boiss.) Font Quer,
 Trab. Mus. Ci. Nat. Barcelona 5/4: 24 (1924)
 Endemic to the Iberian Peninsula (Andalusia).
 Betic Mountains.
 High montane matorral. Nanochamaephyte.

b. subsp. *vestita* Obón & Rivera, Phan.
 monograph. 21: 201 (1994)

S. vestita Boiss. Diagn. Pl. Orient. ser II, n° 4:
 33-34 (1859)
 Endemic to the Iberian Peninsula (Andalusia).
 Betic Mountains, Cabo de Gata region.
 Montane matorral over acid soils. Nanochamaephyte.

c. subsp. *virens* (Boiss.) Obón & Rivera, Phan.
 monograph. 21: 205 (1994)

S. vestita var. *virens* Boiss., Diagn. Pl. Orient.
 Ser II, n° 4: 34 (1859)
 Endemic to the Iberian Peninsula (Andalusia).
 Betic Mountains; Granada province.
 Montane grasslands over acid soils.
 Nanochamaephyte.

6. *S. grandiflora* Salzm. ex Benth., Labiat. Gen.
 Spec.: 577 (1834)

S. boetica Lange, Vidensk. Meddel. Dansk Naturhist.
 Foren. Kjobenhavn 5: 18-19 (1863)
 W Mediterranean.
 Algeciras-Tanger, Betic-Rif Mountains.
 Thermic and humid matorral, rocky, grazing and
 coastal sites. Chamaephyte.

7. *S. hirsuta* L., Sp. Pl.: 575 (1753)

W Mediterranean.
 Atlantic littoral, Guadalquivir, Loukkos and Sebou
 valleys, Algeciras-Tanger, Betic-Rif Mountains,

Cabo de Gata region.

Open forest, montane and disturbed matorral over basic and acid soils. Chamaephyte.

8. *S. ibanyezii* Pau, Bol. Soc. Aragon. Ci. Nat., 2: 68 (3) (1903)

Endemic to the Iberian Peninsula.

Cabo de Gata region.

Dry and arid matorral over basic soils. Chamaephyte.

9. *S. incana* L., Sp. Pl., ed. 2: 802 (1763)

a. subsp. *incana*

S. virgata Desf., Fl. Atlant. 2: 15 (1800); *S. incana* subsp. *virgata* (Desf.) Malagarriga, Collect. Bot. (Barcelona) 7: 681 (1968); *S. virgata* var. *albiflora* (Maire) Sennen, Pl. D'Espagne. F. Sennen n° 9741 (1934); *S. edetana* Peris, Figuerola & Stübing, Bot. J. Linn. Soc. 103: 33 (1990)

W Mediterranean.

Guadalquivir valley, Betic Mountains, Cabo de Gata-Nkor-Nador.

Open forest, montane and rocky matorral, grazing sites. Nanochamaephyte.

b. subsp. *occidentalis* (Font Quer) Cabezudo, Nieto Caldera & T. Navarro, Acta Bot. Malacitana 16(2): 360 (1991)

S. incana var. *occidentalis* Font Quer, Trab. Mus. Ci. Nat. Barcelona 5:4 (1924)

W Mediterranean.

Guadalquivir valley, Betic Mountains, Cabo de Gata region.

Calcareous matorral. Nanochamaephyte.

10. *S. lacaitae* Font Quer, Bot. Soc. Esp. Hist. Nat. 24: 208 (1924)

Endemic to the Iberian Peninsula.

Guadalquivir valley, Betic Mountains.

Matorral over basic soils. Chamaephyte.

11. *S. lasiantha* A. Juss. ex Pers., Syn. Pl. 2: 117 (1806)

S. foetens Clemente ex Lagasca, Gen. Sp. Pl.: 18 (1816)

Endemic to the Iberian Peninsula.

Cabo de Gata region.

Matorral over rocky calcareous soils. Chamaephyte.

12. *S. laxespicata* (Degen & Debeaux) Socorro, Tarrega & Zafra, Studia Bot. Salm. 3: 267 (1984)

S. endressi subsp. *laxespicata* (Degen & Debeaux)

Heywood, Bot. J. Linn. Soc. 65: 355 (1972)

Endemic to the Iberian Peninsula.

Betic Mountains.

Humid matorral, forest. Chamaephyte.

13. *S. leucantha* Cav., Icon. Descr. 4: 2: 304 (1797)

S. biflora Porta, Atti Imp. Regia Accad. Rovereto ser 2, 9: 59 (1892)

a. subsp. *bourgeana* (Boiss. & Reut. in Boiss.) Alcaraz, Peinado, Martínez-Parras, Carrión & Sánchez-Gómez, Acta Bot. Malacitana 12: 246 (1987)

S. bourgeana Boiss. & Reut. in Boiss., Diagn. Pl. Orient. ser II, n° 4: 34-35 (1859)

Endemic to the Iberian Peninsula.

Cabo de Gata region.

Arid and dry matorral over rocky and basic soils. Chamaephyte.

b. subsp. *incana* (Willk.) Malagarr., Collect. Bot. Barcelona 7(2): 38 (1968)

S. linearifolia var. *incana* Willk., Linnaea 9: 56 (1852)

Endemic to the Iberian Peninsula.

Betic Mountains, Cabo de Gata region.

Dry and calcareous matorral. Chamaephyte.

14. *S. luteola* Font Quer, Trab. Mus. Ci. Nat. Barcelona 5(4): 32 (1924)

S. arborescens subsp. *luteola* (Font Quer) P. W. Ball ex Heywood, Bot. J. Linn. Soc. 65: 355 (1972)

Endemic to the Iberian Peninsula (Andalusia).

Cabo de Gata region; Almería province.

Discontinuous matorral over siliceous soils. Chamaephyte.

15. *S. maireana* Font Quer & Pau in Font Quer, Iter Marocc. 1927, n° 533 (1928)

S. arborescens var. *africana* Font Quer & Pau in Font Quer, Iter Marocc. 1927, n° 532 (1928); *S. arborescens* subsp. *maireana* (Font Quer & Pau)

Socorro & Arrebola, Lagascalia 17(2): 357 (1994); *S. beniboufraiana* Obón & Rivera, Phan. monograph. 21: 454 (1994)

Endemic to Morocco (Rif).

Rif Mountains, Nkor-Nador region.

Montane matorral and rocky hills. Chamaephyte.

16. *S. marianica* Obon & Rivera, Phan. monograph. 21: 559 (1994)

Endemic to the Iberian Peninsula (Andalusia).

Betic Mountains; Jaén province.

Matorral over siliceous soils. Chamaephyte.

17. *S. montana* L., Sp. Pl.: 575 (1753)

S. montana subsp. *ebracteata* (Asso) Murb., Lunds Univ. Arsskr. 87: 35 (1898); *S. ebracteata* Asso, Mantissa Stirp. Arag.: 171 (1781)
W Mediterranean.

Guadalquivir valley, Algeciras, Betic Mountains, Cabo de Gata-Nkor-Nador.

Arid montane matorral, grasslands, rocky and grazing sites. Therophyte.

18. *S. murgetana* Obón & Rivera in Rivera & Obón, Anales Jard. Bot. Madrid 48(2): 264 (1991)

subsp. *murgetana*

S. leucantha var. *meridionalis* Font Quer, Trab. Mus. Ci. Nat. Barcelona 5 (4): 9 (1924)

Endemic to the Iberian Peninsula.

Betic Mountains, Cabo de Gata region.

Dry, arid and rocky matorral over calcareous soils. Chamaephyte.

19. *S. ochroleuca* Noë ex Willk., Bot. Zeitung (Berlin) 17: 282 (1859)

S. maroccana Obón & Rivera, Phan. monograph. 21: 570 (1994); *S. ochroleuca* var. *maroccana* Font Quer, Cavanillesia 1: 39 (1928)

North Africa (Morocco, Algeria).

Nkor-Nador region.

Low and rocky matorral. Chamaephyte.

20. *S. oromarroccana* Peris, Stübing & Figuerola, Bot. J. Linn. Soc., 103: 16 (1990)

S. incana var. *tomentosa* Batt. & Pit. in Pit., Contr. Fl. Maroc: 32 (1918)

Endemic to Morocco.

Rif Mountains.

Open forest, rocky grazing sites. Chamaephyte.

21. *S. osteoxylla* (Pau) Rivas Goday & Gómez García, Las Ciencias, 39(1): 76 (1974)

S. almeriensis var. *osteoxylla* Pau, Bol. Soc. Aragon. Ci. Nat. 7/4: 79 (1908)

Endemic to the Iberian Peninsula (Andalusia).

Cabo de Gata region; Almería province.

Arid, thermic and dry thyme matorral over basic soils. Chamaephyte.

21. *S. paulii* Pau, Bol. Soc. Esp. Hist. Nat., 21: 11 (1921)

S. arborescens var. *paulii* (Pau) Font Quer, Trab. Mus. Ci. Nat. Barcelona 5(4): 34 (1924)

Endemic to the Iberian Peninsula.

Betic Mountains. Sierra Morena.

Open forest. Chamaephyte.

22. *S. perez-larae* (Borja) Obón & Rivera, Phan. monograph. 21: 532 (1994)

S. arborescens subsp. *perez-larae* Borja, Anales Jard. Bot. Madrid 40 (1): 278 (1983)

Endemic to the Iberian Peninsula (Andalusia).

Guadalquivir valley, Algeciras.

Coastal matorral over sand soils. Chamaephyte.

23. *S. pungens* Benth., Labiat. Gen. Sp.: 579 (1834) subsp. *pungens*

S. giennensis Pau ex Font Quer, Cavanillesia 1: 40 (1928)

Endemic to the Iberian Peninsula.

Betic Mountains, Cabo de Gata region.

Rocky calcareous hills. Chamaephyte.

24. *S. pusilla* (Lange) Pau, Bull. Acad. Int. Géogr. Bot. 17: 77 (1907)

S. scordioides var. *pusilla* Lange, Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhavn 5: 184 (1863)

a. subsp. *pusilla*

Iberian Peninsula (Andalusia), North Africa (Algeria).

Betic Mountains, Cabo de Gata region.

Arid, thermic and scattered matorral over basic soils. Chamaephyte.

b. subsp. *alhamillensis* Obon & Ribera, Phan. monograph. 21: 486 (1994)

Endemic to the Iberian Peninsula (Andalusia). Cabo de Gata region; Almería province.

Dry discontinuous matorral over basic soils. Chamaephyte.

c. subsp. *briquetiana* (Font Quer & Pau ex Font Quer) Rivera & Obón, Phan. monograph. 21: 489 (1994)

S. briquetiana Font Quer & Pau ex Font Quer, Cavanillesia 3: 60 (1930); *S. granatensis* subsp. *briquetiana* (Font Quer & Pau) Socorro & Arrebola, Lagasalia 17(2): 356 (1994)

Endemic to Morocco (Rif).

Nkor-Nador region.

Open forest, rocky and arid, grazing montane sites. Chamaephyte.

- d. subsp. *granatensis* (Pau) Rivera & Obon, Phan. monograph. 21: 481 (1994)
S. hirsuta var. *granatensis* Pau, Inst. Cat. Hist. Nat.: 223 (1916)
 Endemic to the Iberian Peninsula (Andalusia). Betic Mountains, Cabo de Gata region.
 Dry matorral over rocky calcareous soils. Chamaephyte.
25. *S. reverchonii* Willk., Suppl. Prodr. Fl. Hispan.: 156 (1893)
S. angustifolia auct., non Lagasca
 Endemic to the Iberian Peninsula (Andalusia). Guadalquivir valley, Algeciras, Betic Mountains.
 Low matorral over calcareous soils. Chamaephyte.
26. *S. romana* L., Sp. Pl.: 575. 1753.
 Mediterranean.
 Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.
 Disturbed matorral and grasslands. Therophyte.
27. *S. stachydioides* Willk., Bot. Zeit. 8(5): 78-79 (1850)
 Endemic to the Iberian Peninsula (Andalusia). Cabo de Gata region; Almería province.
 Rocky and dry slopes over calcareous soils. Nanochamaephyte.
28. *S. subatlantica* Doum. ex Batt., Bull. Soc. Géogr. Archéol. Oran 38 (151): 17 (1928)
S. subatlantica Doum. ex Batt., Contr. Fl. Atl.: 69 (1969) (nom. illeg.); *S. fontiqueriana* Peris, Romo & Stübing, Feddes Repert. 106: 1 (1995); *S. sierrarafolsiana* Roselló, Stübing, Peris & Romo, Acta Bot. Barc.: 208 (1998)
 Endemic to Morocco and Algeria.
 Nkor-Nador region.
 Discontinuous montane matorral and rocky coastal slopes. Chamaephyte.
29. *S. tragoriganum* Lagasca, Gen. Sp. Pl.: 18 (1816)
 subsp. *funkiana* (Willk.) Obon & Ribera, Phan. monograph. 21: 368 (1994)
S. funkiana Willk., Bot. Zeit. 33: 282 (1859)
 Endemic to the Iberian Peninsula (Andalusia). Betic Mountains, Cabo de Gata region.
 Rocky low calcareous matorral. Chamaephyte.
8. *STACHYS* L., Sp. Pl.: 580 (1753)
1. *S. annua* (L.) L., Sp. Pl., ed. 2: 813 (1763)
Betonica annua L., Sp. Pl.: 573 (1753)
 Mediterranean.
 Betic Mountains.
 Humid matorral. Therophyte.
2. *S. arenaria* Vahl, Symb. Bot. 2: 64 (1791)
S. arenaria var. *maroccana* Font Quer, Iter Marocc.: n° 565 (1932)
 Europe. North Africa.
 Tanger, Loukkos and Sebou valleys, Rif Mountains.
 Open forest, grazing sites over argile and sand soils. Chamaephyte or hemicryptophyte.
3. *S. arvensis* (L.) L., Sp. Pl., ed. 2: 814 (1763)
Glechoma arvensis L., Sp. Pl.: 578 (1753)
 Circumboreal, Atlantic, SW Asia, Mediterranean.
 All Andalusia and Rif regions.
 Uncultivated, disturbed and grazing areas.
 Therophyte.
4. *S. brachyclada* Noë in Balansa, Pl. Algérie 1852: n° 623 (1952)
 W Mediterranean.
 Nkor-Nador region. Cabo de Gata region.
 Coastal rocky slopes. Therophyte.
5. *S. circinata* L'Hér., Stirp. Nov.: 51 (1786)
 subsp. *circinata*
 Iberian Peninsula, North Africa.
 Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.
 Basic or acid cliffs and rocky slopes. Hemicryptophyte.
6. *S. durandiana* Coss., Bull. Soc. Bot. France 20: 256 (1874)
S. grantii (Batt.) Batt., Bull. Soc. Hist. Nat. Afr. N. 13: 33 (1922)
 Endemic to Morocco.
 Atlantic littoral Rif, Loukkos and Sebou valleys, Rif Mountains.
 Uncultivated and grazing sites over argile soils.
 Therophyte.
7. *S. fontqueri* Pau, Mem. Soc. Real Esp. Hist. Nat. 12: 377 (1924)

Endemic to Morocco (Rif).
Tanger, Rif Mountains.
Open forest, middle and low matorral, rocky calcareous slopes. Hemicryptophyte.

8. *S. germanica* L., Sp. Pl.: 581 (1753)

a. subsp. *cordigera* Briq., Lab. Alp. Marit.: 232 (1893)
Atlantic, Iberian Peninsula, North Africa.
Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador, Sierra Morena.
Common, open forest, low matorral over basic and argile soils. Hemicryptophyte.

b. subsp. *lusitanica* (Hoffmanns. & Link.) Coutinho, Fl. Portugal: 520 (1913)
Endemic to the Iberian Peninsula.
Betic Mountains.
Common, rocky calcareous slopes. Hemicryptophyte.

9. *S. heraclea* All., Fl. Pedem. 1: 31 (1785)

W Mediterranean.
Betic Mountains.
Humid montane sites. Hemicryptophyte.

10. *S. ocymastrum* (L.) Briq., Lab. Alp. Marit.: 252 (1893)

S. lagascae A. Caballero, Mem. Real Soc. Esp. Hist. Nat. 8: 280 (1815)
Circumboreal, W Mediterranean, Atlantic.
Atlantic littoral, Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Nkor-Nador region, Sierra Morena.
Common, sand soils, grazing sites, uncultivated areas. Therophyte.

11. *S. officinalis* (L.) Trevisan, Prosp. Fl. Euganea: 26 (1842)

a. subsp. *officinalis*
Betonica officinalis L., Sp. Pl.: 573 (1753)
Circumboreal, SW Asia, Mediterranean.
Algeciras, Betic Mountains.
Humid matorral. Hemicryptophyte.

b. subsp. *algeriensis* (Noë) Franco, Nova Fl. Portugal 2: 566 (1984)
S. officinalis var. *tangerina* Pau, Mem. Real Soc. Esp. Hist. Nat. 12: 376 (1924); *Betonica algeriensis* Noë, Bull. Soc. Bot. France 2: 582 (1855)

Europe, North Africa.
Tanger, Rif Mountains.
Low matorral over acid soils, grazing sites.
Hemicryptophyte.

12. *S. rifana* Font Quer & Maire in Maire, Cavanillesia 3: 54 (1930)

Endemic to Morocco (Rif).
Rif Mountains, Nkor-Nador region.
Open forest, calcareous coastal hills. Therophyte.

13. *S. saxicola* Coss., Bull. Soc. Bot. France 20: 257 (1874)

subsp. *villosissima* (Ball) Maire in Emb. & Maire, Cat. Pl. Maroc 4: 1113 (1941)
S. saxicola var. *villosissima* Ball., J. Linn. Soc. Bot. 16: 626 (1878)
Endemic to Morocco.
Sebou valleys.
Low matorral. Hemicryptophyte.

3. Subfamily *NEPETOIDEAE*

1. *ACINOS* L., Sp. Pl.: 567 (1753)

1. *A. alpinus* (L.) Moench, Methodus: 407 (1794).
subsp. *meridionalis* (Nyman) P. W. Ball, Bot. J. Linn. Soc. 65: 344 (1972)

Satureja alpina subsp. *meridionalis* (Nyman) Greuter & Burdet, Willdenowia 14: 302(1985); *S. alpina* subsp. *granatensis* (Boiss. & Reut.) Maire, Bull. Hist. Sc. Nat. Afr. N. 29: 444 (1938)
Mediterranean.

Guadalquivir, Loukkos and Sebou valleys, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.
Open forest, rocky grasslands, montane matorral over acid and basic soils. Hemicryptophyte.

2. *A. arvensis* (Lam.) Dandy, J. Ecol. 33: 326 (1946)
Satureja arvensis (L.) Scheele, Flora (Regensburg) 26: 577 (1843)

Mediterranean.
Betic Mountains.
Calcareous montane matorral. Hemicryptophyte.

3. *A. rotundifolius* Pers., Syn. Pl. 2: 131 (1806)
Satureja rotundifolia (Pers.) Briq. in Engl. & Prantl, Nat. Pflanzenfam. IV (3a): 302 (1896)

Mediterranean.
Guadalquivir, Betic Mountains, Cabo de Gata-Nkor-Nador.

Calcareous montane matorral, steppes, rocky, arid, slopes, grasslands. Hemicryptophyte.

2. CLEONIA L., Sp. Pl. ed. 2: 837 (1763)

1. *C. lusitanica* L., Sp. Pl., ed. 2: 837 (1763)

Prunella lusitanica L., Sp. Pl.: 601 (1753)

Iberian Peninsula, North Africa.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Nkor-Nador, Sierra Morena.

Disturbed matorral and grasslands, argile soils. Therophyte.

3. HYSOPIUS L., Sp. Pl.: 569 (1753)

1. *H. officinalis* L., Sp. Pl., ed. 2: 837 (1763)

subsp. *pilifer* (Pant.) Murb., Acta Univ. Lund. 27 (5): 59 (1981)

Hyssopus officinalis var. *pilifer* Pant., Verh. Vereins Natur-Heilk. Presburg ser. 2, 2: 61 (1874); *Hyssopus aristatus* Godron, Mém. Soc. Roy. Sci. Nancy 1850: 106 (1851)

Mediterranean.

Betic Mountains, Cabo de Gata region. Rare.

Dry sites, high montane matorral. Hemicryptophyte.

4. LAVANDULA L., Sp. Pl.: 572 (1753)

1. *L. dentata* L., Sp. Pl.: 572 (1753)

Atlantic, SW Asia, W Mediterranean.

Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.

Low matorral and calcareous rocky slopes from the coast. Chamaephyte.

2. *L. lanata* Boiss., Elench. Pl. Nov.: 72 (1838)

Endemic to the Iberian Peninsula (Andalusia).

Guadalquivir valley, Betic Mountains, Cabo de Gata region.

Dry montane calcareous matorral. Chamaephyte.

3. *L. latifolia* Medicus, Bot. Beob. 1783: 135 (1784)

Mediterranean.

Betic Mountains, Cabo de Gata region.

Dry montane calcareous low matorral. Chamaephyte.

4. *L. multifida* L., Sp. Pl.: 572 (1753)

W Mediterranean.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.

Common, subnitrophilous, uncultivated and grazing sites, arid discontinuous and scattered matorral. Hemicryptophyte.

5. *L. stoechas* L., Sp. Pl.: 573 (1753)

a. subsp. *stoechas*

Mediterranean.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador, Sierra Morena.

Common, middle and low matorral, open forest over siliceous soils. Chamaephyte.

b. subsp. *atlantica* Braun-Blanq., Bull. Soc. Hist. Nat. Afr. N. 13 : 191 (1922)

L. pedunculata var. *atlantica* (Braun-Blanq.) Jahand. & Maire, Cat. Pl. Maroc: 622 (1934).

Endemic to Morocco.

Rif Mountains.

Open forest and middle matorral over siliceous soils. Chamaephyte.

c. subsp. *luisieri* (Rozeira) Rozeira, Agron. Lusit. 24: 173 (1964)

L. stoechas var. *luisieri* Rozeira, Broteria, ser. Ci. Nat. 18: 69 (1949)

Endemic to the Iberian Peninsula.

Guadalquivir valley, Algeciras, Betic Mountains, Sierra Morena.

Middle and low matorral over siliceous soils. Chamaephyte.

d. subsp. *pedunculata* (Mill.) Samp. ex Rozeira, Broteria, ser. Ci. Nat. 18: 72 (1949)

L. pedunculata Cav., Descr. Pl.: 70 (1801)

Endemic to the Iberian Peninsula.

Betic Mountains.

Middle and low matorral over siliceous soils. Chamaephyte.

e. subsp. *sampaiona* Rozeira, Broteria, ser. Ci. Nat. 18: 70 (1949)

L. pedunculata subsp. *sampaioana* (Rozeira) Franco, Nova Fl. Portugal 2: 567 (1984)

Endemic to the Iberian Peninsula.

Guadalquivir valley, Betic Mountains, Sierra Morena.

Middle and low matorral over siliceous soils. Chamaephyte.

6. *L. viridis* L'Hér., Sert. Angl.: 19 (1789)
Atlantic. Iberian Peninsula.
Guadalquivir valley, Sierra Morena.
Low matorral over acid soils. Chamaephyte.

5. *LYCOPUS* L., Sp. Pl.: 21 (1753)

1. *L. europaeus* L., Sp. Pl.: 21 (1753)
L. mollis A. Kerner, Osterr. Bot. Z. 16: 371 (1866)
Mediterranean, Atlantic, Europe, SW Asia.
Guadalquivir, Loukkos and Sebou valleys,
Algeciras-Tanger, Betic-Rif Mountains, Sierra
Morena.
Margins of rivers. Hemicryptophyte.

6. *MELISSA* L., Sp. Pl.: 592 (1753)

1. *M. officinalis* L., Sp. Pl.: 592 (1753)

a. subsp. *officinalis*
S Europe, North Africa, SW Asia.
Guadalquivir valley, Sierra Morena.
Humid sites. Hemicryptophyte.

b. subsp. *altissima* (Sm.) Arcangeli, Comp. Fl.
Ital., ed. 2: 427 (1894)
M. altissima Sm., Fl. Graec. Prodr. 1: 423 (1809)
SW Asia, Mediterranean.
Guadalquivir, Loukkos and Sebou valleys,
Algeciras-Tanger, Betic-Rif Mountains, Cabo
de Gata-Nkor-Nador, Sierra Morena.
Humid sites, forests and cultivated areas.
Hemicryptophyte.

7. *MENTHA* L., Sp. Pl.: 576 (1753)

1. *M. aquatica* L., Sp. Pl.: 576 (1753)
M. hirsuta Huds., Fl. Angl.: 223 (1762)
Atlantic, Europe, SW Asia, Mediterranean.
Atlantic littoral, Guadalquivir, Loukkos and Sebou
valleys, Betic Mountains.
Margin rivers, poorly drained areas. Hemicryptophyte
rhizomatose

2. *M. cervina* L., Sp. Pl.: 578 (1753)
Preslia cervina (L.) Fresen., Syll. Ratisb. 2: 238
(1828)
W Mediterranean, Atlantic.
Algeciras-Tanger, Betic Mountains. Rare.

Humid and poorly drained sites. Hemicryptophyte.

3. *M. longifolia* (L.) Huds., Fl. Angl.: 221 (1762)
M. sylvestris L., Sp. Pl. ed. 2: 804 (1763)
Atlantic, Europe, SW & C Asia, Mediterranean.
Betic Mountains, Cabo de Gata-Nkor-Nador.
Humid sites, river margins and lakes, poorly drained
areas, humid low matorral over calcareous soils.
Hemicryptophyte rhizomatose.

4. *M. pulegium* L., Sp. Pl.: 577 (1753)
M. tomentella Hoffmanns. & Link, Fl. Portug. 1: 73
(1809)
Circumboreal, Atlantic, SW Asia, Mediterranean.
Guadalquivir, Loukkos and Sebou valleys,
Algeciras-Tanger, Betic-Rif Mountains, Cabo de
Gata-Nkor-Nador, Sierra Morena.
Humid sites in low and montane matorral.
Hemicryptophyte rhizomatose.

5. *M. spicata* L., Sp. Pl.: 576 (1753)
M. viridis L., Sp. Pl. ed. 2: 804 (1763)
Circumboreal.
Betic Mountains, cultivated in all Rif regions.
Humid sites, possible cultivated. Hemicryptophyte
rhizomatose.

6. *M. suaveolens* Ehrh., Beitr. Naturk. 7: 149 (1792)
subsp. *suaveolens*
M. rotundifolia auct.
Circumboreal, SW Asia, Mediterranean.
All Andalusia and Rif regions.
River lakes, humid sand poorly drained sites.
Hemicryptophyte rhizomatose.

8. *NEPETA* L., Sp. Pl.: 570 (1753)

1. *N. amethystina* Poir. in Lam., Encycl. Méth.,
Bot., Suppl. 2: 202 (1811)

a. subsp. *amethystina*
N. nepetella subsp. *amethystina* var. *amethystina*
Briquet, Lab. Alp. Marit.: 369 (1893); *N.*
murcica Willk., Bot. Zeitung (Berlin) 15: 218
(1857)
W Mediterranean.
Guadalquivir valley, Algeciras, Betic
Mountains, Cabo de Gata region.
Discontinuous, dry matorral over basic soils.
Chamaephyte.

b. subsp. *anticaria* Cabezudo, Nieto Caldera & T. Navarro, Acta Bot. Malacitana 16(2): 353 (1991)

N. amethystina var. *anticaria* Ladero & Rivas Goday, Lagasalia 12 (1): 40 (1983)

Endemic to the Iberian Peninsula (Andalusia). Betic Mountains; Málaga province.

Low matorral over rocky slopes and calcareous soils. Chamaephyte.

c. subsp. *laciniata* (Willk.) Uberta & Valdés, Lagasalia 12: 40 (1984)

N. boissieri var. *laciniata* Willk., Bot. Zeitung (Berlin) 15: 219 (1857)

Iberian Peninsula (Andalusia) and Morocco. Betic Mountains, Cabo de Gata region; Almería, province.

Low matorral over calcareous soils. Chamaephyte.

d. subsp. *mallophora* (Webb & Heldr.) Uberta & Valdés, Lagasalia 12(1): 35. 1983.

N. mallophora Webb & Heldr., Cat. Pl. Hisp. App. 313 (1850)

d.1. var. *mallophora*

N. amethystina var. *alpina* Willk., Bot. Zeit. 15: 217 (1857)

Endemic to the Iberian Peninsula.

Cabo de Gata region.

Rocky, dry and basic matorral. Chamaephyte.

d.2. var. *bourgaei* (Briq.) Uberta & Valdés, Lagasalia 12 (1): 38 (1983)

Endemic to the Iberian Peninsula.

Cabo de Gata region.

Dry and basic matorrals. Chamaephyte.

2. *N. apuleii* Ucria, Arch. Bot. (Leipzig) 1(1): 69 (1796)

N. tuberosa Desf., Pl. Atl. 2: 12 (1798); *N. apulei* subsp. *pallescens* (Maire) Fco. Gomiz, Anales Jard. Bot. Madrid 55(2): 476 (1997)

subsp. *apuleii*

W Mediterranean.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.

Open forest, low matorral, grasslands over calcareous soils. Chamaephyte.

3. *N. boissieri* Willk., Bot. Zeitung (Berlin) 15: 219 (1857)

Endemic to the Iberian Peninsula (Andalusia). Betic Mountains; Granada province.

Low matorral over basic soils. Chamaephyte.

4. *N. cataria* L., Sp. Pl.: 570 (1778)

N. vulgaris Moench, Méth. Pl.: 387 (1794)

Mediterranean.

Betic Mountains.

Disturbed areas, uncultivated sites.

Hemicriptophyte.

5. *N. granatensis* Boiss., Elench. Pl. Nov.: 76 (1838)

N. multibracteata Webb, Iter Hisp.: 20 (1838)

Endemic to the Iberian Peninsula.

Betic Mountains.

Open forest. Hemicriptophyte.

6. *N. hispanica* Boiss. & Reut., Boiss., Diag. Pl. Orient. ser. 2, 4: 26 (1859)

Iberian Peninsula (Andalusia) and Morocco.

Betic Mountains. Cabo de Gata region.

Dry and calcareous soils. Hemicriptophyte.

7. *N. multibracteata* Desf., Fl. Atl. 2: 11 (1798)

N. lusitanica Rouy, Naturalia (Paris): 32 (1882)

Iberian Peninsula, Morocco.

Guadalquivir, Algeciras, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.

Low matorral over dry and calcareous soils.

Hemicriptophyte.

8. *N. tuberosa* L., Sp. Pl.: 571 (1753)

a. subsp. *tuberosa*

N. lanata Jacq., Obs. Bot. 3: 21, tab.: 75 (1768)

Mediterranean.

Atlantic littoral (Andalusia), Guadalquivir valley, Algeciras, Betic Mountains, Sierra Morena.

Common over basic soils. Hemicriptophyte.

b. subsp. *giennensis* (Degen & Hervier) Heywood, Bot. J. Linn. Soc. 65: 262 (1972)

N. gienensis Degen & Hervier, Bull. Acad. Int. Géogr. Bot. 17: 197 (1907)

Endemic to the Iberian Peninsula.

Betic Mountains.

Montane and calcareous soils. Hemicriptophyte.

c. subsp. *reticulata* (Desf.) Maire in Jahand. & Maire, Cat. Pl. Maroc 3: 632 (1934)

N. reticulata Desf., Fl. Atlant. 2: 12 (1798)

Iberian Peninsula, North Africa.
Betic-Rif Mountains, Nkor-Nador region.
Open forest, humid grasslands over calcareous
and siliceous soils. Hemicryptophyte.

9. *ORIGANUM* L., Sp. Pl.: 588 (1753)

1. *O. compactum* Benth., Lab. Gen. Sp.: 334 (1834)
Iberian Peninsula, North Africa.
Guadalquivir, Loukkos and Sebou valleys, Algeciras-
Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-
Nador.
Humid sites, middle matorral, rocky humid montane
grasslands. Hemicryptophyte.

2. *O. elongatum* (Bonnet) Emb. & Maire, Mém.
Soc. Sci. Nat. Maroc 17 : 43 (1928)
Endemic to Morocco.
Rif Mountains, Nkor-Nador region.
Middle and low rocky matorral. Hemicryptophyte.

3. *O. grosii* Pau & Font Quer in Font Quer, Iter
Maroc. 1928: n°352 (1929)
Endemic to Morocco (Rif).
Tanger, Rif Mountains.
Open forest and middle matorral over calcareous
soils. Hemicryptophyte.

4. *O. majorana* L., Sp. Pl.: 590 (1753)
Majorana hortensis Moench, Meth.: 406 (1794)
SW Asia, Mediterranean.
Guadalquivir valley, Algeciras, cultivated in the Rif
regions.
Cultivated. Hemicryptophyte.

5. *O. vulgare* L., Sp. Pl.: 590 (1753)

a. subsp. *vulgare*
Mediterranean.
Betic Mountains.
Humid sites. Hemicryptophyte.

b. subsp. *virens* Hoffmanns. & Link, Fl. Port. 1:
119 (1809)
O. macrostachyum Hoffmanns. & Link, Fl. Port.
1: 120 (1809)
W Mediterranean, Atlantic.
Guadalquivir valley, Algeciras, Betic
Mountains, Sierra Morena.
Humid sites. Hemicryptophyte.

**10. *PITARDIA* Batt. in Pit., Contr. Fl. Maroc: 31
(1918)**

1. *P. nepetoides* Batt. in Pit., Contr. Fl. Maroc : 31
(1918)
Endemic to Morocco.
Nkor-Nador region.
Rocky hills over calcareous and siliceous soils.
Chamaephyte-hemicryptophyte.

11. *PRUNELLA* L., Sp. Pl.: 600 (1753)

1. *P. hyssopifolia* L., Sp. Pl.: 600 (1753)
W Mediterranean.
Algeciras-Tanger, Betic Mountains.
Humid sites. Hemicryptophyte.

2. *P. laciniata* (L.) L., Sp. Pl., ed. 2: 837 (1763)
P. vulgaris var. *laciniata* L., Sp. Pl.: 600 (1753)
Europe, SW Asia, Iberian peninsula, North Africa.
Atlantic littoral, Guadalquivir, Loukkos and Sebou
valleys, Algeciras-Tanger, Betic-Rif Mountains,
Cabo de Gata-Nkor-Nador.
Humid and grasslands sites. Hemicryptophyte.

3. *P. vulgaris* L., Sp. Pl.: 600 (1753)
Circumboreal, Mediterranean.
All Andalusia and Rif regions.
Middle montane matorrals. Hemicryptophyte.

12. *ROSMARINUS* L., Sp. Pl.: 23 (1753)

1. *R. eriocalyx* Jord. & Fourn., Brev. Pl. Nov. 1: 44
(1866)
subsp. *eriocalyx*
R. officinalis var. *turnerfortii* Noë ex Jordan &
Fourn., l. C. 44 (1866)
Iberian Peninsula, North Africa.
Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.
Dry and arid matorral over basic soils and coastal
sites. Chamaephyte frutescens with decumbent and
rhizomatose stems.

2. *R. officinalis* L., Sp. Pl.: 23 (1753)
R. laxiflorus Noë in Balansa, Pl. Algérie 1852: n°
443 (1852)
Mediterranean.

All Andalusia and Rif regions.
Common in middle, low and discontinuous matorral over basic soils (garrigue). Chamaephyte frutescens.

3. *R. tomentosus* Huber-Morat & Maire, Bull. Soc. Hist. Nat. Afr. Nord 31: 79 (1940)

R. eriocalyx subsp. *tomentosus* (Huber-Morat & Maire) Fernández Casas, Cuad. Ci. Biol. (Granada) 2: 40 (1973)

Endemic to the Iberian Peninsula (Andalusia).
Betic Mountains.
Calcareous and dry coastal rocky slopes.
Chamaephyte with prostrate stems

13. SALVIA L., Sp. Pl.: 23 (1753)

1. *S. aegyptiaca* L., Sp. Pl.: 23 (1753)

Atlantic, SW Asia. North Africa.
Rif Mountains, Nkor-Nador region.
Rocky, arid grasslands in dry areas. Chamaephyte.

2. *S. algeriensis* Desf., Fl. Atlant. 1: 23 (1798)

North Africa.
Nkor-Nador region.
Fields, disturbed matorral and grasslands.
Therophyte.

3. *S. argentea* L., Sp. Pl., ed. 2: 31 (1762)

S. patula Desf., Fl. Atl. 1: 25 (1798); *S. argentea* subsp. *patula* (Desf.) Maire, Bull. Soc. Hist. Nat. Afrique N. 15: 90 (1924)
Mediterranean.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador, Sierra Morena.
Open forest, montane grasslands over calcareous soils. Hemipterophyte.

4. *S. barrelieri* Etl., De Salvia 46 (1777)

S. bicolor Lam., Tabl. Encycl. Meth. Bot. 1: 69 (1791); *S. bicolor* subsp. *bicolor* (Lam.) Maire in Jahand. & Maire, Cat. Pl. Maroc: 642. (1934)
Iberian Peninsula, North Africa.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.

Open forest, fields and low matorral over argile soils. Hemipterophyte.

5. *S. candelabrum* Boiss., Elench. Pl. Nov.: 72 (1838)

Endemic to the Iberian Peninsula (Andalusia).
Betic Mountains, Cabo de Gata region.
Low matorral over rocky and calcareous soils.
Chamaephyte suffrutescens.

6. *S. fruticosa* Mill., Gard. Dict., ed. 8: n° 5 (1768)

S. triloba fil., Suppl.: 88 (1781)
Mediterranean.
Guadalquivir valley, Algeciras.
Cultivated. Chamaephyte frutescens.

7. *S. interrupta* Shousb., Jagtag. Vextrig. Marokko: 18 (1800)

subsp. *pau* (Maire) Maire in Jahand. & Maire, Cat. Pl. Maroc 3: 641 (1934)

S. pau Maire in Emb. & Maire, Pl. Maroc Nov. 1: 5 (1929)

Endemic to Morocco (Rif).
Tanger, Rif Mountains.
Open forest, montane calcareous slopes.
Chamaephyte or hemipterophyte with prostrate stems.

8. *S. lanigera* Poir. in Lam., Encycl., Suppl. 5: 49 (1817)

N Africa, E Mediterranean.
Sebou and Loukkos valleys.
Low matorral. Chamaephyte.

9. *S. lavandulifolia* Vahl, Enum. Pl. 1: 222 (1804)

a. subsp. *blancoana* (Webb & Heldr) Rosúa & Blanca, Acta Bot. Malacitana 11: 256 (1986)
S. blancoana Webb & Heldr., App. Cat. Pl. Hispan.: n° 308 (1850)

a.1. var. *blancoana*

Endemic to the Iberian Peninsula.
Betic Mountains.
Montane, rocky, calcareous matorral.
Chamaephyte.

a.2. var. *aurasiaca* (Maire) Rosúa & Blanca, Acta Bot. Malacitana 11: 259 (1986)

S. aucheri subsp. *blancoana* var. *aurasiaca* Maire, Bull. Soc. Hist. Nat. Afr. Nord. 20: 196 (1929)
Endemic to the Iberian Peninsula.
Betic mountains.

Montane, rocky, calcareous matorral.
Chamaephyte.

b. subsp. *vellerea* (Cuatrec.) Rivas Goday & Rivas Mart., Anales Jard. Bot. Cavanilles 25: 170 (1967)
S. oxyodon Webb & Heldr., App. Cat. Pl. Hispan.: n° 309 (1850)

b.1. var. *vellerea*
S. officinalis var. *vellerea* Cuatrec., Trab. Mus. Ci. Nat. Barcelona 13: 413 (1929)
Endemic to the Iberian Peninsula.
Betic mountains, Cabo de Gata region.
Montane calcareous low matorral.
Chamaephyte.

b.2. var. *lagascana* (Webb) Rosúa & Blanca, Acta Bot. Malacitana 11: 264 (1986)
S. lavandulifolia var. *lagascana* Webb, Iter. Hisp.: 19 (1838)
Endemic to the Iberian Peninsula.
Betic Mountains.
Montane calcareous low matorral.
Chamaephyte.

10. *S. microphylla* Kunth in Humb., Nov. Gen. Sp. 2: 294 (1818)
S. grahamii Benth., Bot. Reg., tab.: 1370 (1830)
Cultivated in the Iberian Peninsula and Morocco
Algeciras-Tanger, Betic-Rif Mountains, Sierra Morena.
Cultivated. Hemicryptophyte with prostrate stems.

11. *S. mouretii* Batt. & Pit., Contr. Fl. Maroc : 29 (1918)
S. maroccana Batt. & Pit. in Pit., Contr. Fl. Maroc : 29 (1918)
Endemic to Morocco.
Tanger, Rif Mountains.
Fields and grasslands over argile soils. Therophyte.

12. *S. officinalis* L., Sp. Pl.: 23 (1753)
Mediterranean, Europe.
Guadalquivir valley.
Cultivated. Chamaephyte frutescens.

13. *S. phlomoides* Asso, Intr. Oryctogr. Aragon.: 158 (1784)
subsp. *phlomoides*
Endemic to the Iberian Peninsula (Andalusia).
Betic Mountains, Cabo de Gata region.
Montane low matorral. Hemicryptophyte.

14. *S. sclarea* L., Sp. Pl.: 27 (1753)
Mediterranean, SW Asia.
Guadalquivir valley, Betic Mountains, Cabo de Gata region.
Disturbed matorral over calcareous soils.
Hemicryptophyte.

15. *S. sclareoides* Brot., Fl. Lusit. 1: 17 (1804)
Endemic to the Iberian Peninsula (Andalusia).
Guadalquivir valley; Cádiz province.
Humid sites. Hemicryptophyte.

16. *S. tingitana* Etl., De Salvia 35 (1777)
Iberian Peninsula, North Africa.
Guadalquivir, Loukkos and Sebou valleys. Rare.
Cultivated over calcareous soils. Hemicryptophyte.

17. *S. verbenaca* L., Sp. Pl.: 25 (1753)
S. clandestina L., Sp. Pl. ed. 2: 36 (1762); *S. verbenaca*. subsp. *hornimoides* (Pourret) Nyman, Consp. Fl. Eur.: 570 (1881); *S. verbenaca* subsp. *battandieri* Maire, Cavanillesia 4: 18 (1931); *S. verbena* subsp. *clandestina* (L.) Briq., Lab. Alpes Marit.: 518 (1895); *S. verbenaca* subsp. *ochreuleuca* (Cosson) Maire in Jahand. & Maire, Cat. Pl. Maroc: 643 (1934)
Mediterranean, Atlantic, N & W Europe, SW Asia.
All Andalusia and Rif regions.
Disturbed matorral, uncultivated areas, steppes, grazing sites, disturbed grasslands. Therophyte.

18. *S. viridis* L., Sp. Pl.: 24 (1753)
S. horninum f. *bicolor* Maire in Jahand. & Maire, Cat. Pl. Maroc: 1114 (1934)
W Mediterranean, SW Asia.
Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.
Fields and montane grasslands over argile and basic soils. Therophyte.

14. *SATUREJA* L., Sp. Pl.: 567 (1753)
(incl. *CALAMINTHA* Miller; *MICROMERIA* Bentham and *CLINOPODIUM* L.)

1. *S. ascendens* (Jordan) K. Maly in Osterr. Bot. Z. 57: 159 (1907)
C. ascendens Jordan, Obs. Pl. Crit. 4: 8 (1846); *C. sylvatica* subsp. *ascendens* (Jordan) P.W. Ball, Bot.

J. Linn. Soc. 65: 346 (1972)

W Mediterranean.

All Andalusia and Rif regions.

Forest, middle matorral, humid sites. Hemipterophyte.

2. *S. baborensis* (Batt.) Briq. in Engler & Prantl, Nat. Pflanzenfam. IV(3a): 301 (1896)

S. grandiflora subsp. *baborensis* (Batt.) Maire in Jahand. & Maire, Cat. Pl. Maroc: 647 (1934)

Endemic to North Africa.

Tanger, Rif Mountains.

Humid middle and low matorral over basic and acid soils. Chamaephyte.

3. *S. barceloi* (Willk.) Pau in Bol. Soc. Esp. Hist. Nat. 21 : 202 (1921)

Micromeria barceloi Willk., Oesterr. Bot. Z. 25: 111 (1875); *S. fontanesii* Briq. in Engler & Prantl, Nat. Pflanzenfam. IV(3a): 299. 1896

Iberian Peninsula, North Africa.

Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.

Coastal cliffs and hills. Chamaephyte.

4. *S. briquetii* Maire in Jahand. & Maire, Cat. Pl. Maroc: 646. 1934.

Micromeria debilis Pomel, Nouv. Mat. Fl. Atl. 1: 122 (1874)

Endemic to North Africa.

Rif Mountains, Nkor-Nador region.

Calcareous rocky places over low matorral. Chamaephyte.

5. *S. nepeta* (L.) Scheele, Flora (Regensburg) 26: 577 (1843)

Calamintha nepeta subsp. *glandulosa* (Req.) P.W. Ball, Bot. J. Linn. Soc. 65: 347 (1753); *C. officinalis* Moench, Meth.: 409 (1794); *Melissa nepeta* L., Sp. Pl.: 593 (1753)

Mediterranean, SW Asia.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador.

Humid sites, open forest and middle matorral, rocky grasslands, rocky low matorral over calcareous and siliceous soils. Hemipterophyte.

6. *S. cuneifolia* Ten., Fl. Napol. 1: 23 (1811-1815)

S. montana subsp. *cuneifolia* (Ten.) O. Bolós & Vigo, Collect. Bot. (Barcelona) 14: 94 (1983)

Mediterranean.

Betic Mountains.

Thermic sites over basic soils. Chamaephyte.

7. *S. graeca* L., Sp. Pl.: 568 (1753)

S. graeca var. *typica* Fiori in Jahand. & Maire, Cat. Pl. Maroc: 645 (1934); *S. graeca* var. *micrantha* (Brot.) Briq. in Jahand. & Maire, Cat. Pl. Maroc: 645 (1934); *Micromeria graeca* (L.) Reichenb., Fl. Germ. Excurs.: 311 (1831); *M. graeca* var. *latifolia* Boiss., Voy. Bot. Midi Esp. 2: 496 (1841)

Mediterranean.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador, Sierra Morena.

Dry, rocky, thermic, low and discontinuous matorral. Chamaephyte.

8. *S. heterotricha* (Boiss. & Reut.) Greuter & Burdet, Willdenowia 14: 304 (1985)

Calamintha heterotricha Boiss. & Reut., Pugill. Pl. Afr. Bor. Hispan.: 93 (1852)

Endemic to North Africa.

Tanger, Rif Mountains.

Forest, rocky grasslands, rocky montane matorral over calcareous and acid soils. Chamaephyte.

9. *S. intricata* Lange, Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhavn 1881: 96 (1882)

S. cuneifolia subsp. *intricata* (Lange) G. López & Muñoz Garmendia, Anales Jard. Bot. Madrid 41: 457 (1985)

Endemic to the Iberian Peninsula.

Betic Mountains.

Low montane matorral. Nanochamaephyte.

10. *S. obovata* Lag., Gen. Sp. Nov.: 18 (1816)

a. subsp. *obovata*

S. cuneifolia var. *obovata* (Lag.) Boiss., Voy. Midi Esp. 2: 495 (1841)

Endemic to the Iberian Peninsula.

Guadalquivir valley, Algeciras, Betic Mountains, Cabo de Gata region.

Dry and rocky low and discontinuous matorral often over basic soils. Chamaephyte.

b. subsp. *canescens* (Rouy) Rivas Mart., Anales Edafol. Agrobiol. 41: 1515 (1983)

S. cuneifolia var. *canescens* Rouy, Rev. Sci. Nat. Ser. 3, 2: 243 (1883)

Endemic to the Iberian Peninsula (Andalusia). Cabo de Gata region.

Arid, discontinuous and scattered matorral.

Chamaephyte.

c. subsp. *malacitana* (G. López) Cabezudo, Nieto Caldera & T. Navarro, Acta Bot. Malacitana 16 (2): 359 (1991)

S. cuneifolia var. *malacitana* G. López, Anales Jard. Bot. Madrid 38(2) (1982)

Endemic to the Iberian Peninsula (Andalusia). Betic Mountains.

Arid, rocky and low matorral. Chamaephyte.

11. *S. salzmanni* P.W. Ball, Bot. J. Linn. Soc. 65: 356 (1972)

S. inodora Salzm. ex Benth., Lab. Gen. Pl.: 354 (1834)

Iberian Peninsula, North Africa.

Guadalquivir, Algeciras-Tanger, Betic Mountains.

Open forest and middle matorral over acid soils. Chamaephyte.

12. *S. vulgaris* (L.) Fritsch, Excursionsfl. Österreich.: 477 (1897)

S. vulgaris subsp. *clinopodium* Maire in Jahand. & Maire, Cat. Pl. Maroc: 649 (1934)

subsp. *arundana* (Boiss.) Greuter & Burdet, Willdenowia 14: 306 (1985)

Calamintha arundana (Boiss.) Benth. in A. DC., Prodr. 12: 233 (1848); *Clinopodium vulgare* subsp. *arundanum* (Boiss.) Nyman, Consp.: 587 (1881);

Melissa arundana Boiss., Voy. Bot. Midi Esp. 2: 498 (1841)

Iberian Peninsula, North Africa.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Sierra Morena.

Humid middle and low matorral. Hemicriptophyte.

15. *THYMUS* L., Sp. Pl.: 590 (1753)

1. *Th. albicans* Hoffmanns. & Link, Fl. Port. 1: 124 (1809)

Th. tomentosus var. *virescens* Cosson, Not. Pl. Crit.: 43 (1849)

Endemic to the Iberian Peninsula.

Atlantic littoral Andalusia, Guadalquivir valley, Algeciras.

Pinus forest coasts, sand soils. Chamaephyte.

2. *Th. algeriensis* Boiss. & Reut., Pugill. Pl. Afr. Bor. Hispan.: 95 (1852)

North Africa.

Tanger, Rif Mountains.

Open siliceous forest, grasslands, basic and acid rocky sites. Chamaephyte.

3. *Th. baeticus* Boiss. ex Lacaíta, Cavanillesia 3: 42 (1930)

Th. hirtus var. *capitatus* Boiss., Voy. Bot. Midi Esp. 2: 488 (1841)

Endemic to the Iberian Peninsula.

Guadalquivir valley, Betic Mountains, Cabo de Gata region.

Low matorral over calcareous soils. Chamaephyte.

4. *Th. carnosus* Boiss., Voy. Bot. Midi Esp. 2: 490 (1841)

Endemic to the Iberian Peninsula.

Atlantic littoral Andalusia.

Coastal matorral over sand soils. Chamaephyte.

5. *Th. granatensis* Boiss., Elenchus: 74 (1838)

a. subsp. *granatensis*

Th. numidicus var. *granatensis* (Boiss.) Pau, Mem. Mus. Ci. Nat. Barcelona, ser. Bot. 1(1): 61 (1922)

Endemic to the Iberian Peninsula (Andalusia). Guadalquivir valley, Algeciras, Betic mountains, Sierra Morena.

Rocky montane slopes over calcareous soils. Nanochamaephyte with prostrate and rhizomatose stems.

b. subsp. *micranthus* (Willk.) O. Bolós & Vigo, Collect. Bot. (Barcelona) 14: 95 (1983)

Th. granatensis var. *micranthus* Willk. in Willk. & Lange, Prod. Fl. Hisp. 2: 406 (1868)

Endemic to the Iberian Peninsula.

Guadalquivir valley, Algeciras, Betic Mountains. Montane matorral over rocky calcareous soils.

Nanochamaephyte with prostrate and rhizomatose stems.

6. *Th. hyemalis* Lange, Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhavn 5: 7 (1863)

a. subsp. *hyemalis*

Th. glandulosus Lag. ex Pau, Mem. Mus. Ci. Nat. Barcelona ser. Bot. 1(3): 27 (1925)

Endemic to the Iberian Peninsula.

Betic Mountains, Cabo de Gata region.

Dry, arid, thermic and disturbed discontinuous matorral over basic and rocky soils. Chamaephyte.

b. subsp. *humanifolius* (Pau) R. Morales, Anales Jard. Bot. Madrid 51: 217 (1994); *Th. ciliatus*

var. *fumanifolius* Pau ex Font Quer, Bol. R. Soc. Esp. Hist. Nat. 16: 286 (1916); *Th. targuistii* B. Tahiri & Rejdali, Lagascalia 18, 2: 287 (1996); *Th. mumbyanus* var. *fumanifolius* (Pau) Sennen & Mauricio, Cat. Fl. Rif Orient.: 89 (1933)
North Africa.
Nkor-Nador region.
Coast, rocky calcareous slopes. Chamaephyte.

7. *Th. longiflorus* Boiss., Elenchus. Pl. Nov.: 75 (1838)

Endemic to the Iberian Peninsula (Andalusia).
Betic Mountains, Cabo de Gata region.
Low and discontinuous matorral over rocky, calcareous soils. Chamaephyte.

8. *Th. mastichina* (L.) L., Sp. Pl., ed. 2: 827 (1763)
Satureja mastichina L., Sp. Pl.: 567 (1753)

a. subsp. *mastichina*
Th. tomentosus Willd., Enum. Pl. Horti Berol.: 626 (1809)
Endemic to the Iberian Peninsula.
All Andalusia regions.
Common in open forest, middle and low matorral over basic and acid soils. Chamaephyte.

b. subsp. *donyanae* R. Morales, Anales Jard. Bot. Madrid 41 (1): 92 (1984)
Endemic to the Iberian Peninsula (Andalusia).
Atlantic littoral Andalusia, Guadalquivir valley.
Dunes. Chamaephyte.

9. *Th. membranaceus* Boiss., Elench. Pl. Nov.: 75 (1838)

Th. longiflorus subsp. *membranaceus* (Boiss.) O. Bolós & Vigo, Collect. Bot. (Barcelona) 14: 95 (1983)
Endemic to the Iberian Peninsula.
Cabo de Gata region.
Arid, disturbed matorral over basic soils.
Nanochamaephyte.

10. *Th. mumbyanus* Boiss. & Reut., Pugill. Pl. Afr. Bor. Hispan.: 96 (1852)

a. subsp. *munbyanus*
Th. mumbyanus subsp. *ciliatus* (Desf.) Greuter & Burdet, Willdenowia 15: 82 (1985); *Th. ciliatus* subsp. *munbyanus* (Boiss. & Reut.) Batt. in Batt. & Trabut, Fl. Algérie 1: 673 (1890)
North Africa.

Rif Mountains, Nkor-Nador region.
Open forest, grasslands, rocky sites and steppes.
Chamaephyte.

b. subsp. *coloratus* (Boiss. & Reut.) Greuter & Burdet, Willdenowia 15: 82 (1985)
Th. ciliatus subsp. *coloratus* (Boiss. & Reut.) Batt. in Batt. & Trabut, Fl. Algérie 1: 673 (1890)
North Africa.
Rif Mountains, Nkor-Nador region.
Open forest, grasslands, rocky sites and steppes.
Chamaephyte.

11. *Th. orospedanus* Villar, Cavanillesia 6: 118 (1934)

Endemic to the Iberian Peninsula.
Betic Mountains, Sierra Morena.
Low calcareous matorral. Chamaephyte.

12. *Th. pulegioides* L., Sp. Pl.: 592 (1753)

Europe.
Betic Mountains.
Montane matorral. Chamaephyte.

13. *Th. riatarum* Humbert & Maire in Emb. & Maire, Pl. Rif. Nov. 2: 1 (1927)

Endemic to Morocco.
Rif Mountains.
Open siliceous forest, grasslands. Chamaephyte.

14. *Th. serpylloides* Bory, Ann. Gen. Sci. Phys. 3: 16 (1820)

a. subsp. *serpylloides*
Th. zygis var. *serpylloides* (Bory) Pau, Mem. Real Soc. Esp. Hist. Nat. 15: 69 (1929)
Endemic to the Iberian Peninsula (Andalusia).
Betic Mountains; Granada province.
High montane matorral and high grasslands, often over siliceous rocky sites.
Nanochamaephyte with rhizomatose stems.

b. subsp. *gadorensis* (Pau) Jalas, Bot. J. Linn. Soc. 64 (3): 251 (1971)
Th. zygis var. *gadorensis* Pau, Mem. Mus. Ci. Nat. Barcelona, ser. Bot. 1(3): 28 (1925); *Th. gadorensis* (Pau) Villar, Cavanillesia 6: 121 (1934)
Endemic to the Iberian Peninsula.
Betic Mountains, Cabo de Gata region.
High montane matorral and high grasslands, often over calcareous rocky sites.

Nanochamaephyte with rhizomatose stems.

- 15. *Th. vulgaris* L., Sp. Pl.: 591 (1753)**
 subsp. *vulgaris*
 W Mediterranean (Europe).
 Betic Mountains.
 Low, rocky calcareous matorrals. Chamaephyte.

- 16. *Th. willdenowii* Boiss., Elenchus: 73 (1838)**
Th. hirtus Willd., Enum. Pl. Hort. Berol.: 623 (1809);
Th. afer (Pau & Font Quer) Villar, Cavanillesia 6:
 120 (1934); *Th. vulgaris* var. *capitellatus* Font Quer,
 Iter Marocc.: n° 580 (1932); *Th. tidighinii* B. Tahiri
 & Redjali, Lagascalía 18: 293 (1996)
 Iberian Peninsula, North Africa (Morocco, Algeria).
 Guadalquivir, Loukkos and Sebou valleys,
 Algeciras-Tanger, Rif Mountains.
 Open forest, rocky grasslands over basic and acid
 soils. Chamaephyte.

- 17. *Th. zygis* Loefl. ex L., Sp. Pl.: 591 (1753)**
- a. subsp. *gracilis* (Boiss.) R. Morales, Anales
 Jard. Bot. Madrid 41 (1): 93 (1984)
Th. zygis var. *gracilis* (Boiss.) Boiss., Voy. Bot.
 Midi Esp. 2: 748 (1845)
 Iberian Peninsula, North Africa.
 Guadalquivir valley, Betic Mountains, Cabo de
 Gata-Nkor-Nador.
 Montane matorral over calcareous rocky soils.
 Nanochamaephyte.
- b. subsp. *sylvestris* (Hoffmanns. & Link) Brot.
 ex Coutinho, Lab. Port.: 35 (1907)
Th. sylvestris Hoffmanns. & Link, Fl. Port. 1:
 132 (1809)
 Endemic to the Iberian Peninsula.
 Atlantic littoral Andalusia, Guadalquivir valley.
 Montane matorral over rocky soils.
 Nanochamaephyte with prostrate stems.

16. *THYMBRA* L., Sp. Pl.: 569 (1753)

- 1. *Th. capitata* (L.) Cav., Elench. Pl. Hort. Matrit.
 37 (1803)**
Coridothymus capitatus (L.) Rchb. f., Öesterr. Bot.
 Wochenbl. 7: 161 (1857); *Thymus capitatus* (L.)
 Hoffmanns. & Link., Fl. Portug. 1: 123 (1809)
 Mediterranean.
 Guadalquivir, Loukkos and Sebou valleys,
 Algeciras-Tanger, Betic-Rif Mountains.

Low, discontinuous, thermic and dry matorral over
 basic soils. Chamaephyte.

17. *ZIZIPHORA* L., Sp. Pl.: 21 (1753)

- 1. *Z. hispanica* L., Cent. Pl. 1: 3 (1755)**
 Iberian Peninsula, North Africa.
 Betic-Rif Mountains, Nkor-Nador region.
 High montane arid grasslands, rocky montane sites.
 Summer therophyte.
- 2. *Z. aragonensis* Pau, Actas Soc. Esp. Hist. Nat.
 27: 103 (1898)**
Z. hispanica subsp. *aragonensis* (Pau) O. Bolós,
 Mem. Real Acad. Ci. Barcelona ser. 3, 42: 311
 (1973)
 Endemic to the Iberian peninsula.
 Betic Mountains.
 Montane grasslands. Summer therophyte.

4. Subfamily SCUTELLARIOIDEAE

1. *SCUTELLARIA* L., Sp. Pl.: 598 (1753)

- 1. *S. alpina* L., Sp. Pl.: 599 (1753)**
S. jabalambrensis Pau, Not. Bot. Fl. Españ. 2: 35
 (1888)
 Mediterranean.
 Betic Mountains.
 Montane matorral and high montane matorral.
 Hemicriptophyte.
- 2. *S. orientalis* L., Sp. Pl.: 598 (1753)**
Scutellaria orientalis subsp. *hispanica* (Boiss.)
 Greuter & Burdet, Willdenowia 14: 307 (1985); *S.*
orientalis var. *hispanica* Boiss., Voy. Bot. Espagne
 2: 500 (1841)
 Iberian Peninsula.
 Betic Mountains.
 Humid montane matorral. Hemicriptophyte.

5. Subfamily TEUCRIOIDEAE

1. *TEUCRIUM* L., Sp. Pl.: 562 (1753)

- 1. *T. afrum* (Emb. & Maire) Pau & Font Quer,
 Cavanillesia 1: 47 (1928)**

a. subsp. *afrum*

T. afrum f. *isaguensis* Pau & Font Quer, Font Quer, Iter Marocc. 1927: n° 511 (1928); *T. salviastrum* subsp. *afrum* Emb. & Maire, Pl. Rif. Nov. 1: 10 (1927)

Endemic to the Iberian Peninsula (Andalusia) and Morocco (Rif).

Betic-Rif Mountains.

Rocky hills, open forest over calcareous and siliceous soils. Nano-chamaephyte with prostrate, sometimes rhizomatose stems.

b. subsp. *riphaeum* (Font Quer & Pau) Castrov. & Bayón, Anales Jard. Bot. Madrid 47: 513 (1990)

T. oxylepis var. *riphaeum* Font Quer & Pau in Font Quer, Iter Marocc. 1927, n° 512 (1928)

Endemic to Morocco (Rif).

Rif Mountains.

Open forest, low matorrals and rocky sites from low siliceous mountains. Chamaephyte.

c. subsp. *rubriflorum* (Font Quer & Pau) Castrov. Bayón, Anales Jard. Bot. Madrid 47 (2): 513 (1990)

T. afrum var. *rubriflorum* Font Quer & Pau in Font Quer, Iter Marocc. 1930: n° 550 (1932); *T. salviastrum* subsp. *rubriflorum* (Font Quer & Pau) Maire, Bull. Soc. Hist. Nat. Afr. N. 24 : 227. (1933)

Endemic to Morocco (Rif).

Tanger.Tangiers

Low matorrals over calcareous soils. Chamaephyte.

2. *T. algarbiense* (Coutinho) Coutinho, Fl. Lenh. Port., ed. 2: 262 (1936)

T. polium var. *algarbiense* Coutinho, Bol. Soc. Brot. 23: 170 (1901)

Endemic to the Iberian Peninsula.

Atlantic littoral Andalusia, Guadalquivir valley.

Uncultivated and disturbed coastal areas. Chamaephyte.

3. *T. almeriense* C.E. Hubb. & Sandwith, Bull. Misc. Inform.: 152 (1928)

T. ellmanii C. E. Hubb. & Sandwith, Bull. Misc. Inform.: 152 (1928)

Endemic to the Iberian Peninsula (Andalusia).

Betic Mountains; Almería province.

Arid thyme matorral and disturbed areas over calcareous soils. Chamaephyte with decumbent stems.

4. *T. aristatum* Pérez Lara, Anales Soc. Esp. Hist. Nat. 18: 90 (1889)

T. cravense Maire, Molinier & Tallon, Compt. Rend. Acad. Sci. Paris 224: 1132 (1947)

W Mediterranean, Europe.

Atlantic littoral Andalusia, Guadalquivir valley.

Humid sites and poorly drained areas. Spring therophyte.

5. *T. aureum* Schreb., Pl. Verticill. Unilab.: 43 (1773)

W Mediterranean, Europe.

Betic Mountains; Málaga province.

Middle matorral over rocky calcareous soils.

Nanochamaephyte.

6. *T. bathazaris* Sennen, Diagn. Nouv. Pl. Espagne Maroc n° 7407: 95 (1930)

Endemic to the Iberian Peninsula.

Cabo de Gata region.

Arid thyme matorral over dry argile soils. Chamaephyte.

7. *T. bicolorum* Pau ex Vicioso, Bol. Real Soc. Esp. Hist. Nat. 216: 142 (1916)

T. aureum subsp. *angustifolium* (Willk.) S. Puech, sensu Váldez Berm. & Sánchez Crespo, Acta Bot. Malacitana 4: 43 (1978)

Endemic to the Iberian Peninsula.

Betic Mountains, Cabo de Gata region.

Hills, montane rocky slopes and high calcareous grasslands. Nanochamaephyte.

8. *T. botrys* L., Sp. Pl.: 562 (1753)

Circumboreal, Mediterranean.

Guadalquivir, Loukkos and Sebou valleys. Algeciras-Tanger, Betic-Rif Mountains.

Open forest over calcareous soils, middle matorral, uncultivated and disturbed areas. Spring therophyte.

9. *T. bracteatum* Desf., Fl. Atlant. 2: 7 (1798)

T. riatarum Humbet & Maire, Mém. Soc. Sci. Nat. Maroc 17: 45 (1928)

Iberian Peninsula and North Africa.

Algeciras-Tanger, Betic-Rif Mountains.

Open forest and rocky hills over basic and acid soils. Hemicriptophyte.

10. *T. brevifolium* Schreb., Pl. Verticill. Unilab.: 27 (1773)

W Mediterranean.

Rif Mountains.

Middle and low matorral from montane sites. Frutescens chamaephyte.

11. *T. campanulatum* L., Sp. Pl.: 562 (1753)

W Mediterranean.

Algeciras-Tanger.

Poorly drained argile soils, uncultivated and disturbed areas. Nanochamaephyte with prostrate stems.

12. *T. capitatum* L., Sp. Pl.: 566 (1753)

a. subsp. *capitatum*

T. polium subsp. *capitatum* (L.) Arcangeli, Comp. Fl. Ital.: 599 (1882)

Mediterranean.

All Andalusia and Rif regions.

Open forest and montane matorral, rocky slopes, arid grasslands, grazing sites, steppes. Chamaephyte.

b. subsp. *gracillimum* (Rouy) Valdés Berm. & Sánchez Crespo, Acta Bot. Malacitana 4: 40 (1978)

Endemic to the Iberian Peninsula.

Betic Mountains, Cabo de Gata region.

Low, dry matorral, disturbed and grazing areas. Chamaephyte.

13. *T. carolipau* Vicioso ex Pau, Bol. Soc. Ibér. Ci. Nat. 20: 185 (1922)

T. carolipau subsp. *fontqueri* (Sennen) Rivas Mart., Anales Jard. Bot. Madrid 31 (1): 88 (1974)

Endemic to the Iberian Peninsula.

Cabo de Gata region.

Argile dry soils. Chamaephyte.

14. *T. cavanillesianum* Font Quer & Jerónimo, Inst. Bot. Cavanilles: 492 (1946)

Endemic to the Iberian Peninsula (Andalusia). Rare.

Cabo de Gata region; Almería province.

Rocky slopes over dry, thermic and arid calcareous soils. Nanochamaephyte.

15. *T. chamaedrys* L., Sp. Pl.: 566 (1753)

Mediterranean, Asia.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains.

Open forest, montane grasslands, rocky slopes and grazing sites, over basic and acid soils. Nanochamaephyte rhizomatose.

16. *T. charidemi* Sandwith, Cavanillesia 3: 38 (1930)

Endemic to the Iberian Peninsula (Andalusia).

Cabo de Gata region; Almería province.

Open, dry and arid discontinuous matorral and rocky slopes over basic soils. Chamaephyte.

17. *T. chlorostachyum* Pau & Font Quer in Font Quer, Iter Marocc. 1929: n° 370 (1930)

a. subsp. *chlorostachyum*

Endemic to Morocco (Rif).

Rif Mountains.

Open forest, rocky slopes over montane calcareous soils. Chamaephyte.

b. subsp. *melillense* (Maire) El Oualidi, J.

Mathez & T. Navarro, Fl. Medit. 7: 21-26 (1997)

T. melillense Maire & Sennen ex Maire, Bull.

Soc. Hist. Nat. Afrique N. 23: 209 (1932)

Endemic to Morocco (Rif).

Rif Mountains.

Rocky montane grazing sites over acid soils. Chamaephyte.

18. *T. chrysotrichum* Lange, Vid. Meddel. Dansk.

Natur. Fore. Kjobenhavn 1881: 96 (1880)

Endemic to the Iberian Peninsula (Andalusia).

Betic Mountains; Málaga province.

Rocky calcareous slopes. Nanochamaephyte.

19. *T. compactum* Clemente ex Lag., Gen. Sp. Nov.: 17 (1816)

Iberian Peninsula and S Mediterranean (Algeria, Lybia and Tunisia).

Betic Mountains, Cabo de Gata region.

Open low matorral and rocky slopes over siliceous and calcareous soils. Chamaephyte with decumbent, sometimes hizomatose, stems.

20. *T. corymbiferum* Desf., Fl. Atl. 2:8 (1798)

T. polium var. *corymbiferum* (Desf.) Maire, Cat. Pl. Maroc 3: 619 (1934)

North Africa (Morocco and Algeria).

Nkor-Nador region.

Open forest, discontinuous matorral, grazing sites, steppes, arid montane sites. Chamaephyte.

21. *T. decipiens* Cosson & Balansa, Bull. Soc. Bot. France 20: 258 (1873)

W Mediterranean (North Africa).

Tanger, Nkor-Nador region.

Open forest, rocky slopes in montane matorral and disturbed areas. Nanochamaephyte.

- 22. *T. doumerguei*** Sennen, Pl. d'Espagne 1933: n° 8874 (1934), in sched.
T. mairei Sennen, Pl. d'Espagne 1933: n° 8773 (1934), in sched.
 NW Africa.
 Nkor-Nador region.
 Discontinuous matorral, rocky slopes, montane matorral over calcareous soils. Chamaephyte.
- 23. *T. dunense*** Sennen, Pl. d'Espagne 1925 n° 5378 (1925)
T. puechiae Greuter & Burdet, Willdenovia 15: 79 (1985)
 S France, Iberian Peninsula, Balearic Islands.
 Atlantic littoral (Andalusia), Algeciras, Betic Mountains, Cabo de Gata region.
 Sand coastal and fossil coastal dunes. Chamaephyte.
- 24. *T. embergeri*** (Sauvage & Vindt) El Oualidi, T. Navarro & A. Martin, Acta Bot. Malacitana 22: 198 (1997)
T. mairei var. *embergeri* Sauvage & Vindt, Le Botaniste, sér. L: 433 (1967)
 Endemic to Morocco.
 Rif Mountains; Aknoul.
 Open montane dense matorral over argile or calcareous soils. Nanochamaephyte.
- 25. *T. eriocephalum*** Willk., Linnaea 25: 58-59 (1852)
 Endemic to the Iberian Peninsula (Andalusia).
 Betic Mountains, Cabo de Gata region.
 Discontinuous thyme matorral over dry and arid calcareous soils. Chamaephyte.
- 26. *T. flavum*** L., Sp. Pl.: 565 (1753)
T. flavum subsp. *glaucum* (Jordan & Fourr.) Ronniger, Verh. Zool.-Bot. Ges. Wien 68: 234 (1918)
 Mediterranean, Asia.
 Tanger, Rif Mountains, Nkor-Nador region.
 Forest, rocky montane slopes. Hemipterophyte.
- 27. *T. fragile*** Boiss., Elench. Pl. Nov.: 77 (1838)
 Endemic to the Iberian Peninsula (Andalusia).
 Betic mountains.
 Calcareous rocky slopes and cliffs. Chamaephyte.
- 28. *T. freynii*** Reverchon ex Willk., Suppl. Prodr. Fl. Hispan.: 159 (1893)
T. quadratum var. *ambiguum* (Lange) Esteve, Veg. Fl. Reg. Centr. Mer. Prov. Murcia: 334 (1973)
 Endemic to the Iberian Peninsula.
 Cabo de Gata region.
 Thermic and calcareous dry rocky slopes.
 Nanochamaephyte.
- 29. *T. fruticans*** L., Sp. Pl.: 562 (1753)
 W Mediterranean.
 Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Cabo de Gata-Nkor-Nador, Sierra Morena.
 Dense matorral, open forest, rocky montane sites.
 Chamaephyte frutescens.
- 30. *T. gnaphalodes*** L'Hér., Stirp. Nov.: 84 (1788)
 Endemic to the Iberian Peninsula.
 Betic Mountains, Cabo de Gata region.
 Low and dry matorral over basic soils.
 Nanochamaephyte with decumbent stems.
- 31. *T. grosii*** Pau in Font Quer, Iter Marocc. 1927: n° 515 (1928)
T. huotii var. *grosii* (Pau) Font Quer in Font Quer, Iter Marocc. 1927: n° 515(1928)
 Endemic to Morocco (Rif).
 Nkor-Nador region.
 Coastal hills, middle matorral over calcareous soils.
 Chamaephyte or Hemipterophyte with prostrate stems.
- 32. *T. gypsophilum*** Emb. & Maire, Mém. Soc. Sci. Nat. Maroc 17: 46 (1928)
T. junii-victoris Sennen & Mauricio in Sennen, Diag. Nouv.: 239 (1936)
 Endemic to Morocco (Rif).
 Rif Mountains; Aknoul.
 Low matorral over gipsy soils. Chamaephyte.
- 33. *T. haenseleri*** Boiss., Elenchus: 79 (1838)
T. luisieri Samp., Ann. Sci. Nat. (Oporto) 7: 10 (1901)
 Endemic to the Iberian Peninsula.
 Atlantic littoral Andalusia, Guadalquivir valley, Betic Mountains, Sierra Morena.
 Uncultivated areas and disturbed areas. Chamaephyte.
- 34. *T. hieronimy*** Sennen, Diagn. Nouv.: 150 n° 8291 (1936)
 Endemic to the Iberian Peninsula (Andalusia).
 Cabo de Gata region.

Thyme matorral over dry and rocky soils. Chamaephyte.

35. *T. huotii* Emb. & Maire, Mem. Soc. Sci. Nat. Maroc 17: 45 (1928)

Endemic to Morocco (Rif).
Rif Mountains; Aknoul.

Open forest, rocky montane sites over siliceous and marne soils. Nanochamaephyte with prostrate stems.

36. *T. intricatum* Lange, Vidensk. Meddel. Dansk. Naturhist. Foren. Kjobenhavn 5: 21 (1863)

Endemic to the Iberian Peninsula (Andalusia).
Cabo de Gata region; Almería province.
Thermic rocky slopes over calcareous soils.
Nanochamaephyte.

37. *T. lanigerum* Lag., Gen. Sp. Pl.: 17 (1816)

T. eriocephalum var. *lutescens* Coincy, Ecl. Pl. Hispan.: 22 (1897)

Endemic to the Iberian Peninsula.
Cabo de Gata region.
Arid and dry thyme matorral. Chamaephyte.

38. *T. leonis* Sennen, Diagn. Nouv.: n° 6739 (1936)

Endemic to the Iberian Peninsula.
Betic Mountains, Cabo de Gata region.
Montane grasslands and open montane matorral.
Nanochamaephyte.

39. *T. ierrouxi* Sennen, Diagn. Nouv.: n° 9843 (1936)

T. polium var. *montanum* Boiss., Voy. Bot. Espagne 2: 517 (1841); *T. aureum* subsp. *angustifolium* (Willk.) S. Puech ex Valdés Berm. & Sánchez Crespo, Acta Bot. Malacitana 4: 43 (1978)
Endemic to the Iberian Peninsula (Andalusia).
Betic Mountains, Cabo de Gata region.
High montane grasslands. Nanochamaephyte with rhizomatose stems.

40. *T. lusitanicum* Schreb., Pl. Verticill. Unilab.: 47 (1773)

T. mairei Sennen, Pl. Esp. Maroc 111: n° 7667 (1936)

a. subsp. *lusitanicum*

T. polium var. *aureiforme* Rouy, Le Naturaliste 2: 21 (1882)

Endemic form the Iberian Peninsula.
All Andalusia regions.

Low and discontinuous matorral. Chamaephyte.

b. subsp. *clementiae* T. Navarro, J. El Oualidi, A. Martin, Acta Bot. Gallica 145(1): 64 (1998)
Endemic to the Iberian Peninsula (Andalusia).
Cabo de Gata region; Almería province.
Coastal thyme matorral over sand and fossil dunes. Chamaephyte.

41. *T. maghrebinum* Greuter & Burdet, Willdenowia 15: 89 (1985)

T. mauritanicum Noë, Bull. Soc. Bot. France 2: 585 (1855)

W Mediterranean, North Africa.
Nkor-Nador region.
Disturbed and grazing areas and low discontinuous matorral. Spring therophyte.

42. *T. murcicum* Sennen, Bull. Soc. Ibér. Ci. Nat. 30 (13): 328-329 (1931)

T. polium subsp. *aguilasense* S. Puech, Rech. *Teucrium* Bassin. Medit. Occid.: 95 (1976)
Endemic to the Iberian Peninsula.
Cabo de Gata region.
Discontinuous, arid and dry matorral. Chamaephyte.

43. *T. oxylepis* Font Quer, Mem. Mus. Ci. Nat. Barcelona, ser. Bot. 1(2): 9 (1924)

T. flavum subsp. *oxylepis* (Font Quer) Fernández Casas, Candollea 29 (2): 331 (1974)
Iberian Peninsula (Andalusia).
Betic Mountains, Cabo de Gata region.
Open forest over rocky calcareous soils. Chamaephyte.

44. *T. polium* L., Sp. Pl. II: 566 (1753)

Mediterranean.
Tanger, Rif Mountains, Nkor- Nador region.
Low montane matorral, montane grasslands, grazing sites, steppes. Chamaephyte.

45. *T. pseudochamaepitys* L., Sp. Pl.: 562 (1753)

W Mediterranean.
All Andalusia and Rif regions.
Arid thyme matorral, rocky slopes, uncultivated and disturbed areas, grazing sites. Hemicriptophyte.

46. *T. pseudoscorodonia* Desf., Fl. Atl. 2: 5 (1798)

T. baeticum Boiss. & Reut., Pugill. Pl. Afr. Bor. Hispan.: 98 (1852); *T. scorodonia* subsp. *baeticum* (Boiss. & Reut.) Tutin, Bot. J. Linn. Soc. 65: 262 (1972)

Iberian Peninsula and North Africa.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Nkor-Nador region.

Humid middle matorral, open forest over siliceous and calcareous soils.

Hemicriptophyte.

47. *T. resupinatum* Desf., Fl. Atl. 2: 4 (1798)

W Mediterranean.

Atlantic littoral, Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains.

Uncultivated and disturbed areas over argile and sand soils. Spring therophyte.

48. *T. reverchonii* Willk., Osterr. Bot. Zeit. 41: 53 (1891)

T. haenseleri var. *angustifolium* Boiss., Voy. Bot. Espagne 2: 518 (1841)

Endemic form the Iberian Peninsula (Andalusia).

Guadalquivir valley, Betic Mountains.

Low matorral, uncultivated and disturbed areas. Chamaephyte.

49. *T. rifanum* (Maire & Sennen) T. Navarro & El Oualidi, Acta Bot. Malacitana 22: 187-203 (1997)

T. polium var. *rifanum* Maire & Sennen, Bull. Soc. Hist. Nat. Afr. N: 62 (1931)

Endemic to Morocco (Rif).

Nkor-Nador region.

Rocky slopes over calcareous soils. Chamaephyte.

50. *T. rixanense* Ruíz Torre & Ruíz del Cast., Bol. Estac. Centr. Ecol. 3 (6): 31 (1975)

Endemic to the Iberian Peninsula (Andalusia).

Betic Mountains.

Coastal rocky slopes. Chamaephyte.

51. *T. rotundifolium* Schreb., Pl. Verticill. Unilab.: 42 (1773)

a. subsp. *rotundifolium*

T. granatense (Boiss.) Boiss. & Reut., Pugillus: 99 (1852)

Iberian Peninsula and Morocco.

Betic Mountains, Cabo de Gata region.

Rocky slopes and calcareous or dolomitic cliffs. Nanochamaephyte.

b. subsp. *sanguisorbifolium* (Pau & Font Quer) Cohen, Trav. Inst. Sci. Chérifien, sér. Bot. 9: 45

(1956)

T. rotundifolium var. *sanguisorbifolium* Pau & Font Quer in Font Quer, Iter Marocc. 1930: n° 552 (1932)

Endemic to Morocco (Rif).

Nkor-Nador region.

Rocky montane slopes over siliceous and calcareous soils. Chamaephyte.

52. *T. scordium* L., Sp. Pl.: 565 (1753)

a. subsp. *scordium*

Mediterranean.

Guadalquivir, Loukkos and Sebou valleys, Betic-Rif Mountains, Sierra Morena.

Low humid forest. Hemicriptophyte.

b. subsp. *scordioides* (Schreb.) Maire & Petimengin, Bull. Soc. Sci. Nat. Nancy, ser. 3, 9: 411 (1908)

T. scordioides Schreb., Pl. Verticill. Unilab.: 37 (1773)

Mediterranean, SW Asia.

Atlantic littoral, Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains and Sierra Morena.

Humid middle matorral, poorly drained areas. Hemicriptophyte.

53. *T. scorodonia* L., Sp. Pl.: 564 (1753)

subsp. *scorodonia*

Scorodonia vulgaris Hill, Brit. Herb.: 372 (1756)

W Mediterranean, Atlantic.

Atlantic littoral, Guadalquivir, Loukkos and Sebou valleys, Betic-Rif Mountains, Sierra Morena.

Humid middle matorral. Hemicriptophyte.

54. *T. similatum* T. Navarro & Rosúa, Candollea 45 (2): 583 (1990)

Endemic to the Iberian Peninsula (Andalusia).

Guadalquivir valley, Betic Mountains, Cabo de Gata region.

High and montane matorral and high montane grasslands over basic soils. Nanochamaephyte.

55. *T. spinosum* L., Sp. Pl.: 566 (1753)

Scordium spinosum (L.) Cav., Icon. Descr. 1: 19, tab.: 31 (1791)

W Mediterranean, Atlantic.

Guadalquivir, Loukkos and Sebou valleys, Algeciras-Tanger, Betic-Rif Mountains, Sierra Morena.

Uncultivated and disturbed areas, argile soils.

Hemicriptophyte.

56. *T. thymifolium* Schreb., Pl. Verticill. Unilab.: 50 (1773)

Endemic to the Iberian Peninsula.

Betic Mountains.

Calcareous rocky slopes and cliffs. Nanochamaephyte.

57. *T. turdetanum* (Devesa & Valdés Berm.) Peris, Figuerola & Stübing, Anales Jard. Bot. Madrid 45(2): 561 (1990)

T. luteum subsp. *turdetanum* (Devesa & Valdés Berm.) Greuter & Burdet, Willdenowia 15: 80 (1985)

Endemic to the Iberian Peninsula (Andalusia).

Betic Mountains; Cordoba province.

Middle matorral and rocky hills over calcareous soils. Nanochamaephyte.

58. *T. turredanum* Losa & Rivas Goday, Anales Jard. Bot. Madrid 25: 204 (1969)

Endemic to the Iberian Peninsula (Andalusia).

Cabo de Gata region; Almería province.

Arid and dry thyme matorral over gipsy and argile soils. Chamaephyte.

59. *T. webbianum* Boiss., Elench. Pl. Nov.: 78 (1838)

Endemic to the Iberian Peninsula (Andalusia).

Betic Mountains.

Dry thyme matorral and rocky slopes over basic soils. Nanochamaephyte.

Floristic richness analyse

The Labiatae checklist of the Andalusia and the Rif comprises 262 taxa belonging to 28 genera and 5 subfamilies, representing about 25% of total Mediterranean Labiatae taxa and c. 70% of strict Mediterranean genera (Morales, 2000). Nepetoideae with 17 genera is the richest subfamily followed by Lamioideae with eight genera. However, Ajugoideae, Teucrioideae and Scutellarioideae are monogenerics. Most Labiatae in the Andalusia and the Rif region are one-lipped and are represented by *Teucrium* genus of the Teucrioideae subfamily, which is

the richest and most diverse subfamily with about 66 taxa (c. 26% of total). Other large genera are: *Sideritis* of the subfamily Lamioideae with 40 taxa (c. 15%), *Thymus* and *Salvia* from Nepetoideae subfamily with 24 (c. 9%) and 20 taxa (c. 8%), respectively, *Stachys* (Lamioideae) and *Satureja* (Nepetoideae) with about 14 taxa (c. 6%) and finally, *Nepeta* (Nepetoideae) with about 14 taxa (c. 6%).

Cleonia, *Hyssopus*, *Lycopus*, *Pitardia*, *Thymbra* and *Ziziphora* from Nepetoideae and *Galeopsis* from Lamioideae are monospecifics.

Teucrium, *Sideritis*, *Thymus* and *Salvia*, in this order, are the most representative genera, together comprising more than 50% of all Labiatae species in Andalusia and the Rif.

About 58 species (c. 24% of the total) are native species from Andalusia and the Rif region, (c. 17% are exclusively from Andalusia and c. 7% from the Rif). *Teucrium*, with about 23 endemic species, and *Sideritis*, with about 17, are the genera with the greatest number of endemic species. *Teucrium afrum* subsp. *afrum* is the only endemic taxon common to both Andalusia and the Rif.

About 36 Labiatae species are Iberian endemisms present in Andalusia, while c. 12 Labiatae found in the Rif correspond to Moroccan endemics. *T. rotundifolium* subsp. *rotundifolium* is the only endemic taxon common to both the Iberian Peninsula and Morocco and present in Andalusia and the Rif region.

Regional survey of biogeography and diversity

In the biogeographical region of Andalusia and the Rif, 24 genera and c. 70 species are common to both. They represent about 88% of all genera and c. 30% of the total number of taxa. About 45% of the taxa are exclusively distributed in Andalusia and c. 22% exclusively in the Rif. All Ajugoideae are common to both Andalusia and Rif, while Nepetoideae species

belonging to the genera *Mentha*, *Cleonia*, *Lycopus*, *Ziziphora*, *Thymbra*, *Prunella*. *Hyssopus*, *Galeopsis* and *Scutellaria* are the only genera exclusive to Andalusia and *Pitardia* to the Rif. *Phlomis purpurea* L., *P. lychnitis* L., *Teucrium capitatum* L., *T. pseudochamaepitys* L., *Marrubium vulgare* L., *Stachys arvensis* (L.) L., *Mentha suaveolens* Ehrh., *Prunella vulgaris* L. and *Salvia verbenaca* L., are found in practically all the biogeographical regions of Andalusia and the Rif. In contrast to these widespread species, some species have a very limited distribution, for example, *Pitardia nepetoides* Batt., which is only found in Nkor-Nador region, and *Scutellaria* species, which is only found in the Betic Mountains.

Teucrium, *Satureja* and allied genera, *Salvia*, *Mentha* and *Sideritis*, all cosmopolitan genera except for the Eurasian *Mentha*, are the most widespread genera common to Andalusia and the Rif, where they represent more than 50% of the overall number of taxa. *Teucrium* and *Sideritis*, are the most widespread in Andalusia and *Teucrium*, *Sideritis* and *Stachys* (the last well distributed throughout S Africa and the Sahel) are widespread in the Rif region. *Teucrium* with 17 species and *Satureja* with seven species, are the genera with the greatest number of species common to both Andalusia and the Rif.

Most of the genera belonging to the Lamioideae subfamily are found in the Andalusian regions of the Cabo de Gata and in the Betic Mountains and are absent from the Atlantic littoral except for *Sideritis* (two species) and *Prasium*.

The greatest number of taxa of Nepetoideae occurs in the Betic-Rif Mountains; these taxa are absent from the Atlantic littoral region, except for one species of *Nepeta* and one of *Prunella*. Cabo de Gata region and surrounding areas is the preferred region for the *Teucrium* species (Teucrioideae).

The strong development of the family in

the Andalusia and the Rif region is reflected by the c. 20% of total taxa represented by 24 genera distributed in the Betic-Rif Mountains, which is the richest and most diverse region, followed by the Valleys, Algeciras-Tanger and Cabo de Gata-Nkor-Nador regions.

The distributional ranges of the genera of endemic species tend to be concentrated in one particular area, the Betic-Rif Mountains, where c. 65% of the total of Andalusian endemisms and c. 70% of all Rif endemisms are found. A high number of endemic Labiatae species are also found in the Cabo de Gata and Nkor-Nador regions, while native species are absent from the Atlantic littoral.

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