

Draft Descriptor List *Thymus serpyllum* L.

Highly discriminating descriptors in this descriptor list are marked with an asterisk [★].

Characterization should preferably be done during the second year after establishment to allow plants to fully express their characteristics. Characters should be recorded on an average of minimum 10 plants per accession.

Locality: Country, GPS

Date [YYYYMMDD]:

Specimen No. (In case of *in situ* characterization):

Accession No. (In case of *ex situ* characterization/evaluation):

In situ *Ex situ*

CHARACTERIZATION

7. Plant descriptors

7.1 Vegetative

Observations should be made on 10 randomly chosen, fully developed plants at inflorescence emergence.

★	7.1.1 Life form 1 Small shrub 2 Perennial herb	√	√
	7.1.2 Plant habit 1 Erect 2 Sub-erect 3 Prostrate 4 Caespitose 5 Decumbent 6 Radicant 7 Sub-tended 99 Other (remarks)	√	√
★	7.1.3 Plant height [mm] Measured from ground level to the top of the plant.	√	√
★	7.1.4 Plant diameter [mm] Average of two measurements per plant taken at the widest point situated at ground level.	√	√

Draft Descriptor List *Thymus serpyllum* L.

			<i>In situ</i>	<i>Ex situ</i>
*	7.1.5 Foliage density		√	√
	1	Very sparse		
	3	Sparse		
	5	Medium		
	7	Dense		
	9	Very dense		
*	7.1.6 Stem length [cm]		√	√
*	7.1.7 Length of flowering stem [cm]		√	√
	Average of measurements on 3 stems per plant.			
*	7.1.8 Pubescence of stem		√	√
	1	On all sides (holotrichous)		
	2	On two sides alternating in each internode (alelotrichous)		
	3	On the angles only (four ribs of the stems) (goniotrichous)		
	99	Other (remarks)		
	7.1.9 Leaf			
	Observations on plants and average of measurements on 3 leaves per plant.			
*	7.1.9.1 Leaf shape		√	√
	1	Acicular		
	2	Linear		
	3	Lanceolate		
	4	Oblanceolate		
	5	Oblong		
	6	Spathulate		
	7	Elliptic		
	8	Orbicular		
	9	Obovate		
	10	Ovate		
	11	Rhomboid		
	12	Spathulate		
	13	Oblong-obovate		
	14	Triangular-ovate		
	15	Lanceolate-ovate		
	99	Other (remarks)		
*	7.1.9.2 Leaf surface		√	√
	1	Glabrous		
	2	Sub-glabrous		
	3	Tomentose		
	4	Velutinous		
	5	Puberulent		
	6	Scabrous		
	7	Sparsely hirsute		
	99	Other (remarks)		
*	7.1.9.3 Leaf ciliation		√	√
	1	Sparsely ciliate		
	2	Ciliate at base		
	3	Not ciliate at the base		
	99	Other (remarks)		

Draft Descriptor List *Thymus serpyllum* L.

		<i>In situ</i>	<i>Ex situ</i>
*	7.1.9.4 Lateral veins of leaf Observed on the lower side of the leaf. 0 Absent 1 Present	√	√
*	7.1.9.5 Leaf length (blade + petiole) [mm] Average of 3 to 5 leaves per plant.		√
*	7.1.9.6 Length of leaf blade [mm] Average of 3 to 5 leaves measured at their longest point per plant.		√
*	7.1.9.7 Width of leaf blade [mm] Average of 3 to 5 leaves measured at their widest point per plant.		√
	7.1.9.8 Petiole of leaf not more than 1/3 of the total leaf length 0 Absent 1 Present	√	√
*	7.1.9.9 Leaf colour (as below or using RHS Colour Chart) 1 Green 2 Pale green 3 Light greyish-green 99 Other		√
	7.1.10 Glands		
	7.1.10.1 Glands type 1 Trichome peltate 2 Trichome capitate 99 Other (remarks)		√
*	7.1.10.2 Trichomes appearance 1 Glabrous, glabrate (lacking hairs or trichomes; surface smooth) 2 Hirsute (coarsely hairy) 3 Hispid (having bristly hairs) 4 Downy (having an almost wool-like covering of long hairs) 5 Pilose (pubescent with long, straight, soft, spreading or erect hairs) 6 Puberulent (minutely pubescent; having fine, short, usually curly, hairs) 7 Pubescent (bearing hairs or trichomes of any type) 8 Strigillose (minutely strigose) 9 Strigose (having straight hairs all pointing in more or less the same direction as along a margin or midrib) 10 Villosulous (minutely villous) 11 Villous (having long, soft hairs, often curved, but not matted) 99 Other (remarks)	√	√

			<i>In situ</i>	<i>Ex situ</i>
*	7.1.10.3	Trichomes density	√	√
		1 Very sparse		
		3 Sparse		
		5 Medium		
		7 Dense		
		9 Very dense		
*	7.1.10.4	Predominating glands distribution	√	√
		1 Leaves		
		2 Stems		
		3 Corolla		
		4 Petiole		
		5 Calyx		
		6 Pedicel		
		7 Bract		
		99 Other (remarks)		
	7.1.10.5	Colour of glands	√	√
		1 Purple		
		2 Yellowish		
		3 Brown		
		4 Amber		
		99 Other (remarks)		
7.2 Inflorescence and fruit				
7.2.1 Inflorescence				
*	7.2.1.1	Density of flowers		√
		1 Very sparse		
		3 Sparse		
		5 Medium		
		7 Dense		
		9 Very dense		
*	7.2.1.2	Length of the flowering part [mm]		√
		Average of 3 flowering stems per plant measured from the insertion point of the first flower to the last.		
*	7.2.1.3	Inflorescence shape	√	√
		1 Oblong		
		2 Oblong-conical		
		3 Globose		
		4 Sub-globose		
		5 Capitulumiform		
		6 Elongate		
		7 Capitulate		
		8 Sub-capitulate		
		9 Ovoid		
		10 Cylindrical		
		11 Spiciform		
		99 Other (remarks)		

		<i>In situ</i>	<i>Ex situ</i>
	7.2.2 Bracts		
*	7.2.2.1 Bracts	√	√
	1 Not similar to the leaves of stems		
	2 More or less similar to the leaves of stems		
*	3 Similar to the leaves of stems		
	99 Other (remarks)		
*	7.2.2.1 Bracts broader than the leaves	√	√
	0 Absent		
	1 Present		
*	7.2.2.1 Bracts length	√	√
	1 Not exceeding the verticillasters		
	2 Mostly exceeding the verticillasters		
	99 Other (remarks)		
	7.2.3 Flower		
*	7.2.3.1 Flower length [mm] Measured from the calyx to the corolla, on an average of 3 flowers per plant	√	√
	7.2.3.2 Pedicel presence	√	√
	0 Absent		
	1 Present		
	7.2.3.3 Pedicel length [mm] Average of 3 flowers per plant.	√	√
	7.2.3.4 Calyx length [mm] Average of 3 flowers per plant.	√	√
*	7.2.3.5 Calyx pubescence	√	√
	1 Glabrous		
	2 Sub-glabrous		
	3 Pubescent		
	4 Puberulent		
	5 Shortly tomentose		
	6 Villous		
	7 Velutinous		
	8 Long patent hairs		
	9 Hirsute		
	10 Scabrous		
	99 Other (remarks)		
*	7.2.3.6 Calyx tube shape	√	√
	1 Dorsally flattened		
	2 Dorsally convex		
	3 Cylindrical		
	4 Sub-cylindrical		
	5 Campanulate		
	6 Tubular-campanulate		
	7 Almost actinomorphic		
	99 Other (remarks)		

Draft Descriptor List *Thymus serpyllum* L.

		<i>In situ</i>	<i>Ex situ</i>
*	7.2.3.7 Calyx teeth appearance 1 Obsolete 2 Distinct 99 Other (remarks)	√	√
	7.2.3.8 Upper calyx teeth as long as wide 0 Absent 1 Present	√	√
*	7.2.3.9 Corolla colour (as below or using RHS Colour Chart) 1 Whitish 2 Pink 3 Pale pink 4 Red 5 Purple 6 Pale purple 7 Pale lilac 8 Purplish-violet 9 Pinkish-purple 10 Creamy 11 Creamy-white 12 Yellow 99 Other (remarks)	√	√
*	7.2.3.10 Corolla length [mm] Average of 3 per plant.	√	√
*	7.2.3.11 Corolla tube type 1 Tubular 2 Campanula-tubular 99 Other (remarks)	√	√
	7.2.3.12 Corolla upper lip type 1 Not bifid 2 Bifid 99 Other (remarks)	√	√
	7.2.3.13 Corolla tube length 1 Scarcely longer than calyx 2 Distinctly longer than calyx 99 Other (remarks)	√	√
*	7.2.4 Date of appearance of inflorescence [YYYYMMDD] Recorded when 50% of plants have inflorescence, per accession.		√
*	7.2.5 Date of beginning of flowering [YYYYMMDD] Recorded when 50% of inflorescences have flower buds, per accession.		√
*	7.2.6 Date of full flowering [YYYYMMDD] Recorded when 50% of flowers are completely open, per accession.	√	√
*	7.2.7 Date of the end of flowering [YYYYMMDD] Recorded when 50% of plants are beginning the fruit maturation, per accession.		√

		<i>In situ</i>	<i>Ex situ</i>
*	7.2.8 Male sterility 0 Absent 1 Present	√	√
	7.2.9 Fruit		
*	7.2.9.1 100-fruit weight [g] Harvested from each plant or per population.	√	√
*	7.2.9.2 1000-seed weight [g] Harvested from each plant or per population		√
	7.3 Remarks Any additional information, especially in the category “99 = Other” under various descriptors above, may be specified here.		√

EVALUATION

8. Plant descriptors

	8.1 Fresh biomass per plant [FWg]	√	√
	8.2 Leaf dry matter content [DWg] Artificial drying at 30-35°C ± 48 h until material breakable.	√	√
	8.3 Inflorescence and fruit dry matter [DWg] Artificial drying at 30-35°C ± 48 h until material breakable.	√	√
	8.4 Dry biomass per plant [DWg]	√	√
	8.5 Chemical composition	√	√
*	8.5.1 Essential oil content in dry flowering aerial parts [% DW] [v/w]		
*	8.5.2 Relative amount of main oil components [% DW] [v/w]		
	8.5.1.1 1,8-Cineol content [%]		
	8.5.2.2 β-Myrcene content [%]		
	8.5.2.3 Linalool content [%]		
	8.5.2.4 Linalyl acetate content [%]		
	8.5.2.5 β-Caryophyllene content [%]		
	8.5.2.6 Camphor content [%]		
	8.5.2.7 Germacrene B content [%]		
	8.5.2.8 trans-β-Ocimene content [%]		

		<i>In situ</i>	<i>Ex situ</i>
	8.5.2.9 α -Cadinol content [%]		
	8.5.2.10 β -Caryophyllene oxide content [%]		
*	8.5.3 Polyphenol content in dry flowering aerial parts [% DW] [v/w]		
	8.5.3.1 Apigenin content [%]		
	8.5.3.2 Luteolin content [%]		
	8.5.3.3 Caffeic acid content [%]		
	8.5.3.4 Rosmarinic acid content [%]		
	8.6 Cytological characters	√	√
*	8.6.1 Chromosome number		
*	8.6.2 Ploidy level		

BIBLIOGRAPHY

- Adzet T, Granger R, Passet J, San Martin R. 1977. Le polymorphisme chimique dans le genre *Thymus*: sa signification taxonomique. *Biochemical Systematics and Ecology* 5:269-272.
- Bioversity International. 2007. Guidelines for the development of crop descriptor lists. Bioversity Technical Bulletin Series no.13. Bioversity International, Rome, Italy.
- Coutinho AXP. 1939. Flora de Portugal (Plantas Vasculares). Disposta em Chaves Dicotómicas. 2nd edition. Bertrand Ltd., Lisboa.
- Cunha AP, Silva AP, Roque OR. 2003. Plantas e produtos vegetais em fitoterapia. Serviço de Educação e Bolsas. Fundação Calouste Gulbenkian, Lisboa.
- EDQM. 2007. European Pharmacopoeia. 6th edition. European Directorate for the Quality of Medicines and Health Care (EDQM), Council of Europe, Strasbourg.
- Franco JA. 1984. Nova Flora de Portugal (Continente e Açores). Vol. II. Clethraceae – Compositae. Escolar Editora, Lisboa.
- Infarmed. 2002. Farmacopeia Portuguesa Vol. VII. Edição oficial. Lisboa.
- Loziene K, Venskutonis PR. 2006. Chemical composition of the essential oil of *Thymus serpyllum* L. ssp. *serpyllum* growing wild in Lithuania. *Journal of Essential Oil Research* 18:206-211.
- Mockute D, Bernotiene G. 2004. 1,8-cineole-Caryophyllene oxide chemotype of essential oil of *Thymus serpyllum* L. growing wild in Vilnius (Lithuania). *Journal of Essential Oil Research* 16:236-238.
- Morales Valverde R. 1986. Taxonomía de los géneros *Thymus* (excluida la sección *Serpyllum*) y *Timbra* en la Península Ibérica. *Ruizia* 3:3-324.
- Morales R, Quintanar A, Cabezas F, Pujadas AJ, Cirujano S. 2010. Flora Ibérica. Plantas Vasculares de la Península Ibérica e Islas Baleares. Vol. XII. Verbenaceae - Labiatae – Callitrichaceae. Real Jardín Botánico, C.S.I.C. Madrid. (http://www.floraiberica.es/miscelania/noticias/Volumen_XII.php).
- Radford AE, Dickison WC, Massey JR, Bell CR. 1974. *Vascular Plant Systematics*. Harper & Row, Publishers, New York.
- RHS [The Royal Horticultural Society]. 2001. *RHS Colour Chart*. The Royal Horticultural Society, London.
- Stahl-Biskup E. 2002. Essential oil chemistry of the genus *Thymus* – a global view. In: Stahl-Biskup E, Sáez F, editors. *Medicinal and Aromatic Plants – industrial profiles*. Vol. 17. Taylor & Francis, London.
- Tutin TG, Heywood VH, Burges NA, Moore DM, Valentine DH, Walters SM, Webb DA. 1972. *Flora Europaea*. "Diapensiaceae to Myoporaceae". Vol. 3. Cambridge University Press.

CONTRIBUTORS

INRB/Unidade de Recursos Genéticos, Ecofisiologia e Melhoramento de Plantas

Ana Maria Barata
Instituto Nacional de Recursos Biológicos, Banco Português de Germoplasma Vegetal
Quinta de S. José, S. Pedro de Merelim
4700-859 Braga
Email: ana.barata@inrb.pt

Eliseu Bettencourt (*currently on leave of absence*)
INRB/Unidade de Recursos Genéticos, Ecofisiologia e Melhoramento de Plantas
L-INIA, Quinta do Marquês, Av. da República, 2784-505 Oeiras
Email: eliseu.bettencourt@gmail.com

Violeta Lopes
Instituto Nacional de Recursos Biológicos, Banco Português de Germoplasma Vegetal
Quinta de S. José, S. Pedro de Merelim
4700-859 Braga
Email: violeta.lopes@inrb.pt

Filomena Rocha
Instituto Nacional de Recursos Biológicos, Banco Português de Germoplasma Vegetal
Quinta de S. José, S. Pedro de Merelim
4700-859 Braga
Email: filomena.rocha@inrb.pt

Bioversity International

Alercia Adriana and Aixa del Greco¹
Bioversity International
Via dei Tre Denari, 472/a
00057 Maccarese
Rome, Italy
Email: a.alercia@cgiar.org

REVIEWER

Ana Cristina Figueiredo
Instituto de Biotecnologia e Bioengenharia, Centro de Biotecnologia Vegetal C2,
Departamento de Biologia Vegetal, Universidade de Lisboa
Campo Grande
1749-016 Lisboa
Email: acsf@fc.ul.pt

¹ has now left the Institute