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MEDICAL SEGETAL FLORA OF CENTRAL POLAND

Abstract: In the paper a list and general characterization of medical segetal flora of Central Poland is given. This flora consists of 300 taxa. Among the most threatened species there are 6 taxa: *Adonis aestivalis*, *A. flammea*, *Anagallis foemina*, *Bupleurum rotundifolium*, *Camelina sativa*, *Cuscuta europaea*.

Key words: flora, medical plants, endangered medical plants, Central Poland

1. INTRODUCTION

The medical segetal flora of Central Poland was not so far complexly investigated. Initial, very limited data about the occurrence of medical plants in the cultivated fields of the town of Krośniewice were supplied by GMEREK (1998). The authoress recorded 8 species of medical segetal plants: *Elymus repens*, *Centaurea cyanus*, *Chamomilla recutita*, *Equisetum arvense*, *Rumex acetosa*, *R. crispus*, *Urtica urens*, *Viola tricolor*.

Numerous facts connected with the decrease in number and size of sites and abundance of populations of the segetal flora of Central Poland (WARCHOLIŃSKA 2002a, b, 2004) necessitated the assessment of the present state, determination of characteristics and degree of threat to species (threat status) of medical segetal flora species in Central Poland.

In the present study the lists of taxa of the medical segetal flora of Central Poland, number of the threatened species and their general characterization are presented.

2. MATERIALS AND METHODS

The assessment of the state of medical segetal flora of Central Poland is based on data from the study by WARCHOLIŃSKA (2004) and results of investigations carried out in 2002–2003. On the basis of analyzing respective results a list of medical taxa of segetal flora in Central Poland and a list of threatened species of the flora were compiled, as well as a general characterization of the flora was prepared.

The systematic composition of taxa on the list of medical segetal flora was accepted after SZAFER et al. (1976), while the botanic nomenclature after MIREK et al. (2002). Also, the following publications were used: JACKOWIAK (1990); MOWSZOWICZ (1975A); ROTHMALER (1976); RUTKOWSKI (1998); SUWARA-SZMIGIELSKA (2004); TUTIN et al. (1964–1980); WARCHOLIŃSKA (1993, 2003, 2004).

In the list of taxa, the following characteristics are given before and after the Latin names:

- * – Pharmacopeial plants;
- Constancy (**Shl** – short-living plants, **Per** – perennial plants);
- Life form (**M** – Megaphanerophytes, **N** – Nanophanerophytes, **Ch** – Woody chamaephytes, **C** – Herbaceous chamaephytes, **H** – Hemicryptophytes, **G** – Geophytes, **T** – Therophytes);
- Geographic-historical group (**Ap** – Apophytes, **Ar** – Archaeophytes, **Ep** – Epocophytes, **He** – Hemiagriophytes, **Er** – Ergaziophygophytes);
- Category of threat (**CR** – critically endangered, **EN** – endangered, **VU** – vulnerable, **LR** – lower risk, **DD** – data deficient);
- Frequency classes (very rare, rare, rather frequent, frequent, common).

In the list of the threatened medical plants are arranged in alphabetical order (Table 1).

Table 1: The list of the endangered medical plants of Central Poland

No	Species	Categories of threat				
		CR	EN	VU	LR	DD
1	<i>Adonis aestivalis</i>		+			
2	<i>A. flammea</i>	+				
3	<i>Aethusa cynapium</i> subsp. <i>agrestis</i>					+
4	<i>Agrostemma githago</i>			+		
5	<i>Ajuga genevensis</i>					+
6	<i>Allium oleraceum</i>			+		
7	<i>Anagallis foemina</i>		+			
8	<i>Anthemis tinctoria</i>			+		

Table 1: (cont.)

No	Species	Categories of threat				
		CR	EN	VU	LR	DD
9	<i>Asparagus officinalis</i>					+
10	<i>Borago officinalis</i>					+
11	<i>Bupleurum rotundifolium</i>	+				
12	<i>Camelina sativa</i>	+				
13	<i>Centaurea cyanus</i>			+		
14	<i>Centaureum pulchellum</i>					+
15	<i>Chenopodium hybridum</i>					+
16	<i>Consolida regalis</i>			+		
17	<i>Cuscuta europea</i>		+			
18	<i>Cynoglossum officinale</i>					+
19	<i>Datura stramonium</i>					+
20	<i>Echinops sphaerocephalus</i>					+
21	<i>Elsholtzia ciliata</i>					+
22	<i>Falcaria vulgaris</i>					+
23	<i>Fumaria officinalis</i>				+	
24	<i>Gagea arvensis</i>					+
25	<i>G. pratensis</i>			+		
26	<i>Galeopsis angustifolia</i>					+
27	<i>Helichrysum arenarium</i>			+		
28	<i>Herniaria glabra</i>					+
29	<i>H. hirsuta</i>			+		
30	<i>Hyoscyamus niger</i>					+
31	<i>Hypericum humifusum</i>			+		
32	<i>Melisa officinalis</i>					+
33	<i>Onopordum acanthium</i>					+
34	<i>Papaver dubium</i>			+		
35	<i>P. rhoeas</i>			+		
36	<i>Petasites hybridus</i>					+
37	<i>Plantago intermedia</i>			+		
38	<i>Sanguisorba minor</i>					+
39	<i>Sinapis arvensis</i>			+		
40	<i>Thalictrum minus</i> subsp. <i>minus</i>					+
41	<i>Vincetoxicum hirundinaria</i>					+
Total		3	3	13	1	21

While determining the characteristics of the medical segetal flora plants the following studies were used: CZYŻEWSKA (1998); GŁOWACIŃSKI (1997); IUCN 1994; JACKOWIAK (1990); JAKUBOWSKA-GABARA, KUCHARSKI (1999); KAŻMIERCZAKOWA, ZARZYCKI (2001); KORNAŚ (1968, 1990); MIREK et al. (2002); MOWSZOWICZ (1975a); SZAFER et al. (1976); WARCHOLIŃSKA (1993, 2002a, b, 2003, 2004); ZAJĄC, ZAJĄC (1975); ZARZYCKI et al. 2002.

The affinity of taxa of segetal flora in Central Poland (WARCHOLIŃSKA 2004) to the group of medical plants was determined on the basis of the following studies: ANIOŁ-KWIATKOWSKA, KWIATKOWSKI (1993); BREMMNESS (1995); BRODA, MOWSZOWICZ (1968, 1971); Farmacopea Polska (1970, 1999); GMEREK (1998); KUŹNIEWSKI, AUGUSTYN-PUZIEWICZ (1986); MOWSZOWICZ (1975a, b, c, 1977, 1980); OŻAROWSKI, JARONIEWSKI (1987); PODBIELKOWSKI (1985); PODLECH (1994); RUTKOWSKI (1998); SCHÖNFELDER (1992); STARÝ, JIRÁSEK (1976); SZAFER et al. (1988); SZMEJA (1988); SZMEJA, TOKARZ (1982); ŚWIEJKOWSKI (1990); TOKARZ et al. (1980, 1981); VOLÁK, STODOLA (1992); ŻARNOWIEC et al. (1997).

3. RESULTS

3.1. List of taxa

Polypodiaceae

1. *Athyrium filix-femina* (L.) Roth – Per, H, Ap, very rare
- *2. *Dryopteris filix-mas* (L.) Schott – Per, H, Ap, very rare
3. *Pteridium aquilinum* (L.) Kuhn – Per, G, Ap, rare

Equisetaceae

- *4. *Equisetum arvense* L. – Per, G, Ap, common
5. *E. fluviatile* L. – Per, G, Ap, very rare
6. *E. palustre* L. – Per, G, Ap, very rare

Cannabaceae

7. *Cannabis sativa* L. – Shl, T, Er, very rare

Urticaceae

8. *Urtica urens* L. – Shl, T, Ar, rather frequent
9. *U. dioica* L. subsp. *dioica* – Per, H, Ap, rare

Polygonaceae

10. *Rumex maritimus* L. – Shl, T, Ap, very rare
11. *R. obtusifolius* L. – Per, H, Ap, rather frequent
12. *R. hydrolapathum* Huds. – Per, H, Ap, very rare
13. *R. confertus* Willd. – Per, H, Ep, very rare
14. *R. crispus* L. – Per, H, Ap, frequent

15. *R. acetosa* L. – Per, H, Ap, very rare
16. *R. acetosella* L. – Per, G, Ap, common
17. *Polygonum amphibium* L. var. *terrestre* Leysser – Per, G, Ap, rather frequent
18. *P. persicaria* L. – Shl, T, Ap, common
19. *P. lapathifolium* L. subsp. *pallidum* (With.) – Shl, T, Ap, common
20. *P. lapathifolium* L. subsp. *lapathifolium* – Shl, T, Ap, frequent
- *21. *P. hydropiper* L. – Shl, T, Ap, frequent
- *22. *P. aequale* Lindm. – Shl, T, Ap, rather frequent
- *23. *P. heterophyllum* Lindm. Emend. H. Schultz. – Shl, T, Ap, frequent
- *24. *P. neglectum* Besser. – Shl, T, Ap, rather frequent
25. *Fallopia convolvulus* (L.) Á. Löve – Shl, T, Ar, common
26. *F. dumetorum* (L.) Holub – Shl, T, Ap, very rare
27. *Fagopyrum esculentum* Moench – Shl, T, Er, very rare
28. *F. tataricum* (L.) Gaertn. – Shl, T, Er, very rare

Chenopodiaceae

29. *Beta vulgaris* L. – Shl, T, Er, very rare
30. *Chenopodium hybridum* L. – Shl, T, Ap, DD, rare
31. *Ch. album* L. – Shl, T, Ap, common
32. *Ch. rubrum* L. – Shl, T, Ap, very rare
33. *Ch. bonus-henricus* L. – Per, C, Ar, very rare
34. *Spinacia oleracea* L. – Shl, T, Er, very rare
35. *Atriplex hortensis* L. – Shl, T, Ep, very rare
36. *A. patula* L. – Shl, T, Ap, frequent
37. *A. prostrata* Boucher Ex DC. subsp. *prostrata* – Shl, T, Ap, very rare

Amaranthaceae

38. *Amaranthus retroflexus* L. – Shl, T, Ep, frequent

Caryophyllaceae

39. *Dianthus carthusianorum* L. – Per, C, Ap, very rare
40. *D. deltoides* L. – Per, H, Ap, very rare
- *41. *Saponaria officinalis* L. – Per, H, Ap, very rare
42. *Lychnis flos-cuculi* L. – Per, H, Ap, very rare
43. *Melandrium album* (Mill.) Garcke – Shl, H, Ap, rather frequent
44. *Silene vulgaris* (Moench) Garcke – Per, H, Ap, very rare
45. *Agrostemma githago* L. – Shl, T, Ar, VU, rather frequent
46. *Stellaria media* (L.) Vill. – Shl, T, Ap, common

- 47. *S. graminea* L. – Per, H, Ap, rather frequent
- 48. *Cerastium arvense* L. – Per, C, Ap, rare
- 49. *Spergularia rubra* (L.) J. Presl & C. Presl – Shl, H, Ap, frequent
- *50. *Herniaria glabra* L. – Shl, T, Ap, DD, rare
- *51. *H. hirsuta* L. – Shl, T, Ar, VU, very rare

Euphorbiaceae

- 52. *Euphorbia peplus* L. – Shl, T, Ar, rather frequent
- 53. *E. helioscopia* L. – Shl, T, Ar, frequent
- 54. *E. cyparissias* L. – Per, H, Ap, rare
- 55. *E. esula* L. – Per, H, Ap, rare

Ranunculaceae

- 56. *Nigella sativa* L. – Shl, T, Er, very rare
- 57. *Consolida regalis* S. F. Gray – Shl, T, Ar, VU, rather frequent
- 58. *Ranunculus bulbosus* L. – Per, G, Ap, very rare
- 59. *R. repens* L. – Per, H, Ap, frequent
- 60. *R. acris* L. – Per, H, Ap, very rare
- 61. *Ficaria verna* Huds. – Per, G, Ap, very rare
- 62. *Thalictrum minus* L. subsp. *minus* – Per, H, Ap, DD, very rare
- 63. *Adonis aestivalis* L. – Shl, T, Ar, EN, very rare
- 64. *A. flammea* Jacq. – Shl, Per, Ar, CR, very rare

Papaveraceae

- 65. *Papaver argemone* L. – Shl, T, Ar, frequent
- 66. *P. dubium* L. – Shl, T, Ar, VU, rare
- 67. *P. rhoeas* L. – Shl, T, Ar, VU, rather frequent
- *68. *P. somniferum* L. – Shl, T, Er, very rare
- 69. *Chelidonium majus* L. – Per, H, Ap, very rare
- 70. *Fumaria officinalis* L. subsp. *officinalis* – Shl, T, Ar, LR, rather frequent

Brassicaceae

- 71. *Cardamine amara* L. subsp. *amara* – Per, H, Ap, very rare
- 72. *C. pratensis* L. s. str. – Per, H, Ap, very rare
- 73. *Rorippa sylvestris* (L.) Besser. – Per, H, Ap, rather frequent
- 74. *Barbarea vulgaris* R. Br. – Shl, H, Ap, very rare
- 75. *Cheiranthus cheiri* L. – Per, H, Er, very rare
- 76. *Sisymbrium officinale* (L.) Scop. – Shl, T, Ar, rare
- 77. *Descurainia sophia* (L.) Webb. – Shl, T, Ar, rare
- 78. *Erysimum cheiranthoides* L. – Shl, T, Ar, rather frequent
- 79. *Brassica oleracea* L. subsp. *capitata* (L.) Duchesne – Shl, T, Er, very rare

- *80. *B. napus* L. subsp. *napus* – Shl, T, Er, very rare
- *81. *B. rapa* L. subsp. *oleifera* DC. – Shl, T, Er, very rare
- *82. *B. nigra* (L.) W. D. J. Koch – Shl, T, Er, very rare
- 83. *Sinapis arvensis* L. – Shl, T, Ar, rather frequent
- *84. *S. alba* L. – Shl, T, Er, rare
- 85. *Armoracia rusticana* P. Gaerth. – Per, G, Ar, very rare
- 86. *Camelina sativa* (L.) Crantz – Shl, T, Ar, CR, very rare
- 87. *Thlaspi arvense* L. – Shl, T, Ar, rather frequent
- 88. *Lepidium ruderae* L. – Shl, T, Ar, very rare
- 89. *Capsella bursa-pastoris* (L.) Medik. – Shl, T, Ar, frequent
- 90. *Raphanus raphanistrum* L. – Shl, T, Ar, common
- 91. *R. sativus* L. – Shl, T, Er, rather frequent

Violaceae

- 92. *Viola tricolor* L. s. str. – Shl, T, Ar, frequent
- 93. *V. arvensis* Murray – Shl, T, Ar, common

Clusiaceae

- 94. *Hypericum humifusum* L. – Shl, T, Ap, VU, rare
- *95. *H. perforatum* L. – Per, H, Ap, very rare
- 96. *H. maculatum* Crantz. – Per, H, Ap, very rare
- 97. *H. tetrapterum* Fr. – Per, H, Ap, very rare

Crassulaceae

- 98. *Sedum acre* L. – Per, C, Ap, very rare

Saxifragaceae

- 99. *Saxifraga granulata* L. – Per, H, Ap, very rare

Rosaceae

- 100. *Rubus plicatus* Weihe & Ness – Per, N, Ap, very rare
- 101. *R. caesius* L. – Per, N, Ap, rare
- 102. *Potentilla argentea* L. s. str. – Per, H, Ap, rare
- 103. *P. reptans* L. – Per, H, Ap, rare
- *104. *P. erecta* (L.) Raeusch. – Per, H, Ap, very rare
- 105. *P. anserina* L. – Per, H, Ap, frequent
- 106. *Alchemilla monticola* Opiz – Per, H, Ap, very rare
- 107. *Aphanes arvensis* L. – Shl, T, Ar, rather frequent
- 108. *Geum rivale* L. – Per, H, Ap, very rare
- 109. *G. urbanum* L. – Per, H, Ap, rare
- 110. *Agrimonia eupatoria* L. – Per, H, Ap, very rare
- 111. *Sanguisorba minor* Scop. – Per, H, Ap, DD, very rare

Fabaceae

112. *Ononis arvensis* L. – Per, H, Ap, very rare
113. *Medicago sativa* L. – Per, H, Er, very rare
*114. *Melilotus officinallis* (L.) Pall. – Shl, H, Ap, very rare
115. *Trifolium arvense* L. – Shl, T, Ap, rare
116. *T. repens* L. – Per, H, Ap, rather frequent
117. *T. pratense* L. – Per, H, Ap, very rare
118. *Anthyllis vulneraria* L. – Per, H, Ap, very rare
119. *Coronilla varia* L. – Per, H, Ap, very rare
120. *Vicia hirsuta* (L.) S. F. Gray – Shl, T, Ar, common
121. *V. cracca* L. – Per, H, Ap, rare
122. *V. angustifolia* L. – Shl, T, Ap, frequent
123. *Lathyrus pratensis* L. – Per, H, Ap, very rare
124. *Phaseolus vulgaris* L. – Shl, T, Er, very rare

Lythraceae

125. *Lythrum salicaria* L. – Per, H, Ap, rare

Onagraceae

126. *Epilobium parviflorum* Schreb. – Per, H, Ap, very rare
127. *E. palustre* L. – Per, H, Ap, very rare
128. *Chamaenerion angustifolium* (L.) Scop. – Per, H, Ap, very rare
129. *Oenothera biennis* L. s. str. – Shl, H, Ap, rare

Malvaceae

130. *Malva sylvestris* L. – Shl, H, Ar, very rare
131. *M. neglecta* Wallr. – Shl, H, Ar, very rare
132. *Alcea rosea* L. – Per, H, Ar, very rare

Tiliaceae

- *133. *Tilia cordata* Mill. – Per, M, Ap, very rare

Linaceae

134. *Linum catharticum* L. – Shl, T, Ap, very rare
135. *L. usitatissimum* L. – Shl, T, Er, very rare

Geraniaceae

136. *Geranium pratense* L. – Per, H, Ap, very rare
137. *Erodium cicutarium* (L.) L'Hérit. – Shl, T, Ap, common

Apiaceae

138. *Sium latifolium* L. – Per, H, Ap, very rare
139. *Falcaria vulgaris* Bernh. – Per, H, Ap, DD, rare

- *140. *Carum carvi* L. – Shl, H, Ap, very rare
- 141. *Aegopodium podagraria* L. – Per, H, Ap, very rare
- 142. *Pimpinella saxifraga* L. – Per, H, Ap, very rare
- 143. *Bupleurum rotundifolium* L. – Shl, T, Ar, CR, very rare
- 144. *Petroselinum crispum* (Mill.) A. W. Hill – Shl, H, Er, very rare
- 145. *Aethusa cynapium* L. subsp. *agrestis* (Wallr.) Dostál – Shl, T, Ar, DD, rare
- 146. *A. cynapium* L. subsp. *cynapium* – Shl, T, Ap, rare
- 147. *Heracleum sphondylium* L. s. str. – Per, H, Ap, very rare
- 148. *Peucedanum oreoselinum* (L.) Moench – Per, H, Ap, rare
- 149. *Pastinaca sativa* L. s. str. – Shl, H, Ap, very rare
- 150. *Anethum graveolens* L. – Shl, T, Er, very rare
- 151. *Daucus carota* L. subsp. *carota* Roth – Shl, H, Ap, rare
- 152. *D. carota* L. subsp. *sativa* (Hoffm.) Arcangeli – Shl, H, Ap, very rare
- 153. *Anthriscus sylvestris* (L.) Hoffm. – Per, H, Ap, very rare
- 154. *Coriandrum sativum* L. – Shl, T, Er, very rare
- 155. *Chaerophyllum aromaticum* L. – Per, H, Ap, very rare

Primulaceae

- 156. *Anagallis arvensis* L. – Shl, T, Ar, frequent
- 157. *A. foemina* Mill. – Shl, T, Ar, EN, very rare
- 158. *Lysimachia nummularia* L. – Per, C, Ap, very rare
- 159. *L. vulgaris* L. – Per, H, Ap, rather frequent

Convolvulaceae

- 160. *Convolvulus arvensis* L. – Per, G, Ar, common

Cuscutaceae

- 161. *Cuscuta europaea* L. – Shl, T, Ap, very rare

Boraginaceae

- 162. *Borago officinalis* L. – Shl, T, Ar, DD, very rare
- 163. *Anchusa officinalis* L. – Shl, H, Ar, rare
- *164. *Symphytum officinale* L. – Per, H, Ap, very rare
- 165. *Echium vulgare* L. – Shl, H, Ap, very rare
- 166. *Lithospermum arvense* L. – Shl, T, Ar, frequent
- 167. *Myosotis palustris* (L.) L. Emend. Rchb. – Per, H, Ap, rare
- 168. *M. arvensis* (L.) Hill – Shl, T, Ar, frequent
- 169. *Cynoglossum officinale* L. – Per, H, Ar, DD, very rare

Solanaceae

- *170. *Hyoscyamus niger* L. – Shl, T, Ar, DD, very rare
- 171. *Solanum nigrum* L. Emend. Mill. – Shl, T, Ar, rare

- *172. *S. tuberosum* L. – Per, G, Er, very rare
173. *Lycopersicon esculentum* Mill. – Shl, T, Er, very rare
*174. *Datura stramonium* L. – Shl, T, Ep, DD, very rare

Scrophulariaceae

175. *Verbascum thapsus* L. – Shl, H, Ap, very rare
*176. *V. densiflorum* Bertol. – Shl, H, Ap, very rare
*177. *V. phlomoides* L. – Shl, H, Ap, very rare
178. *Linaria vulgaris* Mill. – Per, G, Ap, very rare
179. *Scrophularia nodosa* L. – Per, H, Ap, very rare
180. *Veronica beccabunga* L. – Per, C, Ap, very rare
181. *V. chamaedrys* L. s. str. – Per, C, Ap, very rare
182. *V. spicata* L. subsp. *spicata* – Per, C, Ap, very rare
183. *V. arvensis* L. – Shl, T, Ar, frequent
184. *V. triphyllos* L. – Shl, T, Ar, rather frequent
185. *V. dillenii* Crantz – Shl, T, Ap, rather frequent
186. *V. persica* Poir. – Shl, T, Ep, frequent
187. *V. hederifolia* L. s. str. – Shl, T, Ar, rather frequent
188. *Euphrasia rostkoviana* Hayne – Shl, T, Ap, very rare
189. *E. stricta* D. Wolff Ex J. F. Lehm. – Shl, T, Ap, very rare
190. *Odontites serotina* (Lam.) Rchb. s. str. – Shl, T, Ap, rare
191. *O. verna* (Bellardi) Dumort. – Shl, T, Ar, rare
192. *Rhinanthus serotinus* (Schönh.) Oborný – Shl, T, Ar, rather frequent

Lamiaceae

193. *Ajuga reptans* L. – Per, H, Ap, very rare
194. *A. genevensis* L. – Per, H, Ap, DD, very rare
195. *Nepeta cataria* L. – Per, H, Ar, very rare
196. *Glechoma hederacea* L. – Per, H, Ap, very rare
197. *Prunella vulgaris* L. – Per, H, Ap, very rare
198. *Galeopsis ladanum* L. – Shl, T, Ar, rare
199. *G. angustifolia* (Ehrh.) Hoffm. – Shl, T, Ap, DD, very rare
200. *G. tetrahit* L. – Shl, T, Ap, frequent
201. *G. speciosa* Mill. – Shl, T, Ap, very rare
202. *Lamium album* L. – Per, H, Ar, very rare
203. *L. amplexicaule* L. – Shl, T, Ar, frequent
204. *Leonurus cardiaca* L. – Per, H, Ar, rare
205. *Ballota nigra* L. subsp. *nigra* – Per, H, Ar, rare
*206. *Melissa officinalis* L. – Per, H, Er, DD, very rare
207. *Clinopodium vulgare* L. – Per, H, Ap, very rare
*208. *Origanum vulgare* L. – Per, H, Ap, very rare

209. *Thymus pulegioides* L. – Per, C, Ap, very rare
*210. *Th. serpyllum* L. Emend. Fr. – Per, C, Ap, very rare
211. *Mentha longifolia* (L.) L. – Per, H, Ap, very rare
*212. *M. × citrata* Ehrh. subsp. *citrata* – Per, H, Er, very rare
213. *M. aquatica* L. – Per, H, Ap, very rare
214. *M. arvensis* L. – Per, G, Ap, frequent
215. *Elsholtzia ciliata* (Thunb.) Hyl. – Shl, T, Ep, DD, rare

Plantaginaceae

216. *Plantago major* L. s. str. – Per, H, Ap, frequent
217. *P. intermedia* Gilib. – Per, H, Ap, VU, rare
218. *P. media* L. – Per, H, Ap, very rare
219. *P. lanceolata* L. – Per, H, Ap, rather frequent
220. *P. arenaria* Waldst. & Kit. – Shl, T, Ap, very rare

Gentianaceae

221. *Centaureum pulchellum* (Sw.) Druce – Shl, T, Ap, DD, very rare

Asclepiadaceae

222. *Vincetoxicum hirundinaria* Medik. – Per, H, Ap, DD, very rare

Rubiaceae

223. *Galium verum* L. s. str. – Per, H, Ap, very rare
224. *G. mollugo* L. s. str. – Per, H, Ap, very rare
225. *G. aparine* L. – Shl, T, Ap, frequent

Caprifoliaceae

226. *Sambucus ebulus* L. – Per, H, Ap, very rare
*227. *S. nigra* L. – Per, N, Ap, very rare

Dipsacaceae

228. *Knautia arvensis* (L.) J. M. Coult. – Per, H, Ap, rather frequent

Cucurbitaceae

229. *Cucurbita pepo* L. – Shl, T, Er, very rare
230. *Cucumis sativus* L. – Shl, T, Er, very rare

Campanulaceae

231. *Jasione montana* L. – Shl, H, Ap, very rare
232. *Campanula glomerata* L. – Per, H, Ap, very rare

Asteraceae

233. *Solidago virgaurea* L. s. str. – Per, H, Ap, very rare
234. *S. canadensis* L. – Per, H, He, very rare
235. *S. gigantea* Aiton – Per, H, He, very rare
236. *Bellis perennis* L. – Per, H, Ap, very rare
237. *Conyza canadensis* (L.) Cornquist – Shl, T, Ep, common
238. *Gnaphalium uliginosum* L. – Shl, T, Ap, frequent
239. *G. sylvaticum* L. – Per, H, Ap, very rare
*240. *Helichrysum arenarium* (L.) Moench – Per, H, Ap, VU, very rare
241. *Inula britannica* L. – Per, H, Ap, very rare
242. *Xanthium strumarium* L. – Shl, T, Ep, very rare
243. *Helianthus annuus* L. – Shl, T, Er, very rare
244. *H. tuberosus* L. – Per, G, He, very rare
245. *Bidens tripartita* L. – Shl, T, Ap, frequent
246. *Galinsoga parviflora* Cav. – Shl, T, Ep, frequent
247. *G. ciliata* (Raf.) S. F. Blake – Shl, T, Ep, rather frequent
248. *Anthemis tinctoria* L. – Shl, H, Ap, VU, very rare
249. *A. arvensis* L. – Shl, T, Ar, common
250. *A. cotula* L. – Shl, T, Ar, Rare
*251. *Achillea millefolium* L. s. str. – Per, H, Ap, common
*252. *Chamomilla recutita* (L.) Rauschert – Shl, T, Ar, rather frequent
253. *Ch. suaveolens* (Pursh) Rydb. – Shl, T, Ep, rather frequent
254. *Leucanthemum vulgare* Lam. s. str. – Per, H, Ap, rare
255. *Tanacetum vulgare* Lam. – Per, H, Ap, rare
*256. *Artemisia absinthium* L. – Per, Ch, Ap, very rare
257. *A. vulgaris* L. – Per, H, Ap, frequent
258. *A. scoparia* Waldst. & Kit. – Shl, T, Ap, very rare
259. *A. campestris* L. subsp. *campestris* – Per, Ch, Ap, rare
*260. *Tussilago farfara* L. – Per, G, Ap, rare
261. *Petasites hybridus* (L.) P. Gaertn., B. Mey. & Scherb. – Per, G, Ap, DD, very rare
262. *Senecio vulgaris* L. – Shl, T, Ar, rare
263. *S. jacobaea* L. – Per, H, Ap, – very rare
264. *Calendula officinalis* L. – Shl, T, Er, very rare
265. *Echinops sphaerocephalus* L. – Per, H, Ep, DD, very rare
266. *Arctium tomentosum* Mill. – Shl, H, Ap, very rare
267. *A. lappa* L. – Shl, H, Ap, very rare
268. *A. minus* (Hill) Bernh. – Shl, H, Ap, very rare
269. *Cirsium oleraceum* (L.) Scop. – Per, H, Ap, rare
270. *C. arvense* (L.) Scop. – Per, G, Ap, common
271. *Onopordum acanthium* L. – Shl, H, Ar, DD, very rare
272. *Centaurea cyanus* L. – Shl, T, Ar, VU, frequent

273. *C. jacea* L. – Per, H, Ap, very rare
274. *Cichorium intybus* L. – Per, H, Ar, rare
275. *Lapsana communis* L. – Shl, T, Ap, very rare
276. *Tragopogon pratensis* L. s. str. – Shl, H, Ap, very rare
*277. *Taraxacum officinale* F. H. Wigg. – Per, H, Ap, common
278. *Sonchus oleraceus* L. – Shl, T, Ar, rather frequent
279. *S. arvensis* L. subsp. *arvensis* – Per, G, Ap, common
280. *Lactuca serriola* L. – Shl, H, Ar, very rare
281. *L. sativa* L. – Shl, T, Er, very rare
282. *Hieracium pilosella* L. – Per, H, Ap, rare

Liliaceae

283. *Allium cepa* L. – Per, G, Er, very rare
284. *A. porrum* L. – Per, G, Er, very rare
285. *A. schoenoprasum* L. – Per, G, Er, very rare
286. *A. sativum* L. – Per, G, Er, very rare
287. *A. oleraceum* L. – Per, G, Ap, VU, very rare
288. *Gagea pratensis* (Pers.) Dumort. – Per, G, Ap, VU, rare
289. *G. arvensis* (Pers.) Dumort. – Per, G, Ar, very rare
290. *Asparagus officinalis* L. – Per, G, Ap, DD, very rare

Juncaceae

291. *Juncus effusus* L. – Per, H, Ap, very rare
292. *J. conglomeratus* L. Emend. Leers. – Per, H, Ap, very rare

Poaceae

293. *Anthoxanthum odoratum* L. s. str. – Per, H, Ap, very rare
294. *Avena sativa* L. – Shl, T, Er, very rare
295. *Phragmites australis* (Cav.) Trin. Ex Steud. – Per, G, Ap, very rare
296. *Dactylis glomerata* L. subsp. *glomerata* – Per, H, Ap, very rare
*297. *Elymus repens* (L.) Gould – Per, G, Ap, common
*298. *Triticum aestivum* L. – Shl, T, Er, very rare
299. *Hordeum vulgare* L. – Shl, T, Er, very rare
300. *Zea mays* L. – Shl, T, Er, very rare

3.2. General characterization of the medical segetal flora

The medical segetal flora of Central Poland is rich. It comprises 300 taxa, which constitutes 51.1% of the total segetal flora of this part of Poland (WARCHOLIŃSKA 2004). They belong to 44 families. The following families are richest in medical plants: Compositae (50 taxa), Labiatae (23 taxa), Cru-

ciferae (21 taxa), Polygonaceae (19 taxa), Umbelliferae (18 taxa), Scrophulariaceae (18 taxa). They comprise a total of 149 (49.7%) taxa of the investigated flora. The most frequently recorded species were those of the very rare (178 taxa – 59.3%), and rare (44 taxa – 14.7%) groups. The other groups comprised: rather frequent – 30 taxa, frequent – 29 taxa, common – 19 taxa. Perennial plants dominated (153 taxa – 51.0%). In terms of life forms hemicryptophytes (134 taxa – 44.7%) and therophytes (122 taxa – 40.7%) plants dominated. The geophytes group comprised 28 (9.3%) taxa, while that of herbaceous chamaephytes 10 (3.3%) taxa. Only 6 taxa belonged to the other groups (megaphanerophytes – 1 taxon, nanophanerophytes – 3 taxa, and woody chamaephytes – 2 taxa). Native plants (apophytes) constituted the dominant group (184 taxa – 61.3%) among the geographic-historical plant groups. Archeophytes plants frequent (65 taxa – 21.7%), and ergasiophygophytes plants rather frequent (36 taxa – 12.0%) recorded. Epiphytes plants (12 taxa) were rare and hemiepiphytes plants very rare (3 taxa) recorded.

Among the medical segetal plants of Central Poland there are 41 taxa (13.7%) that are endangered (Table 1). The most abundant group (21 taxa) constitute those from the data deficient group (DD), while an abundant one (13 taxa) those of the vulnerable group (VU). Plants of the CR – critically endangered (3 taxa), EN – endangered (3 taxa) and LR – lower risk (1 taxon) groups are rare and very rare observed.

4. DISCUSSION

The medical segetal flora of Central Poland is rich. At present it comprises 300 taxa, which constitute 51.1% of the total segetal flora of this part of Poland (WARCHOLIŃSKA 2004). The Compositae family is the richest in the species of medical plants (50 taxa). Plant species used in folk medicine are the most abundantly represented. To plant species used in folk medicine, and commonly occurring in the area of Central Poland belong, among others: *Polygonum lapathifolium*, *Fallopia convolvulus*, *Chenopodium album*, *Stellaria media*, *Raphanus raphanistrum*, *Convolvulus arvensis*, *Myosotis arvensis*, *Galeopsis tetrahit*, *Mentha arvensis*, *Plantago major*, *Galinsoga parviflora*, *Anthemis arvensis*, *Achillea millefolium*, *Sonchus arvensis*, *Elymus repens*. The medical flora of the discussed region comprises only 38 pharmacopeial plants. This group of plants includes also frequent and common plants, e.g. *Equisetum arvense*, *Polygonum hydropiper*, *Taraxacum officinale* and rarely noted, such as: *Herniaria hirsuta*, *Hyoscyamus niger*, *Melissa officinalis*, *Origanum vulgare*. In the group of medical plants of the discussed region, there are 41 (13.7%) threatened plants, e.g. *Adonis aestivalis*, *Camelina sativa*, *Hypericum humifusum*,

Bupleurum rotundifolium, *Anagallis foemina*, *Linaria vulgaris*, *Galeopsis angustifolia*, *Centaureum pulchellum*, *Gagea pratensis* (Table 1).

The most important changes in the flora of medical plants, expressed, among others, in decreases in the number of plants and number of sites, result first of all from changes in abiotic environmental conditions and transformations of agrophytocoenoses.

The threatened medical plants of segetal plants should be covered by legal protection.

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