

A REVISION OF ROSA IN TURKEY

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ABSTRACT. A revision is given of the 31 Turkish species of *Rosa* together with a diagnostic key. Two new species are described: *R. antalyensis* Manden. and *R. hakkariensis* Manden.; two Caucasian species are recognised in the Turkish flora for the first time; a *nomen novum*, *R. bithynica* Manden., is given for the species incorrectly known as *R. olympica* (Clem.) Burnat & Gremli; an amended description is given of Sect. *Orientales*; a new variety of *R. iberica* is described, var. *anatolica* Manden.

INTRODUCTION

This study is based essentially on the important material in the herbarium of the Royal Botanic Garden, Edinburgh (E), and on some collections of B. V. D. Post and G. V. Aznavour (G) collected in NW Turkey. Specimens are also cited from the following herbaria: Komarov Botanical Institute, Leningrad (LE); Botanical Institute of the Georgian Academy of Sciences (TBI); and the herbarium of the Georgian State Museum, Tbilisi (TGM).

The taxonomy of the genus *Rosa* presents real difficulties. In spite of the relatively abundant literature on the roses of SW Asia, our knowledge remains fragmentary on many points. Several species of the genus have been described from Anatolia, but there have been very different opinions concerning their systematic position. Although they have been reviewed and reclassified repeatedly, the autonomy of some of them has remained in doubt.

The ample collections made in Turkey, principally by the expeditions of Dr P. H. Davis, provide a sound basis for contributing something new to our knowledge of Turkish roses. Concerning those species which are common to Turkey and Caucasia, we have had the great advantage of being able to refer most frequently to living material.

Thanks to abundant material, we have been able with more precision to indicate the geographical distribution of several species. Nevertheless, one must point out the problems posed by an analysis of the endemic taxa. The endemic roses of Anatolia belong to sections having very different centres of diversity. For example, *R. pisiformis*—a species strictly confined to E Anatolia—belongs to Sect. *Leucanthae* which includes species in Central Asia, Afghanistan and Iran. From the taxonomic point of view, *R. pisiformis* appears to be rather isolated.

Among the roses endemic to Anatolia, the most numerous are the taxa which belong to Sect. *Caninae*, notably in the subsections *Coriifoliae* and *Vestitae*. The taxonomy of Sect. *Caninae* has always presented the greatest problems, and has proved extremely controversial. It is necessary to point out that in the present state of our knowledge it is difficult to pronounce on the taxonomic value of the different taxa attached to the collective species *R. canina*, *R. corymbifera* and *R. klukii*, which all belong to Subsect. *Caninae*. These are extremely polymorphic species; the first two have a very extensive distribution in Turkey, and occupy diverse biotypes. They present here, as

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elsewhere throughout the extent of their range, great morphological plasticity. The variation affects the size and form of the leaflets, indumentum, petal colour which varies from white to bright pink, and several other characters. At the heart of these collective species different authors have distinguished numerous varieties which in my opinion are artificial groups. In fact, one finds in nature every transition between these forms. This critical group requires special study. That is why I prefer to treat these species here in a very broad sense.

From a phytogeographical point of view, it is interesting to note that the species of *Rosa* common to Anatolia and Caucasia, as well as vicarious species, add to the examples of floristic links between the two countries. Finally, it is necessary to point out that Anatolia constitutes for *Rosa* a very pronounced centre of differentiation.

CLAVIS SPECIERUM

1. Styli elongati in columnam tenuem longam coaliti. Petala alba. Flores in corymbam dispositi 2
- + Styli liberi capitulum breve formantes. Petala rosea, rubra, lutea vel alba 3
2. Folia 5-7-foliolata, foliola glabra, coriacea, sempervirentia, utrinque nitida. Sepala ovato-lanceolata breviter acuminata plerumque integra. Columna stylium pubescens 1. *R. sempervirens*
- + Folia 5-foliolata, superiora saepe 3-foliolata, foliola ovato-elliptica minus coriacea, decidua, supra opaca glabra vel sparse pubescentia, subtus pallidiora pubescentia. Sepala apice longe acuminata, integra vel externa appendicibus lateralibus instructa. Columna stylium glabra vel leviter pubescens 2. *R. phoenicia*
3. Hypanthia parva 6-10 mm in diam., maturitate hypanthii pars superior cum disco sepalisque decidua. Sepala integra post anthesin erecta. Petala laete rosea. Folia 5-foliolata, foliola elliptica vel obovata margine simpliciter dentata, utrinque breviter pubescentia subtus glandulis minutissimis stipitatis obsita 5. *R. pisiformis*
- + Hypanthii pars superior cum disco sepalisque maturitate haud decidua 4
4. Petala lutea interdum bicoloria, supra punicea, subtus lutea. Sepala subindivisa post anthesin erecta. Hypanthia maturitate latericia 5
- + Petala rosea, rubra vel alba 6
5. Aculei recti subulati plerumque setis numerosis intermixti. Folia 5-7-foliolata, foliola elliptica basi rotundata, utrinque concoloria parce adpresseque pubescentia, subtus interdum parum glandulosa. Flores subpleni. Petala interdum bicoloria 8. *R. foetida*
- + Aculei alii validi uncinato-recurvi, complanati basi dilatati, alii minuti setacei, interdum inconspicui. Folia plerumque

- 7-foliolata, foliola obovata basi manifeste cuneatim angustata, supra glaucescentia subglabra, subtus pallidiora et pilis brevibus haud dense obsita, margine subbiserrata. Petala lutea 7. *R. rapinii*
6. Petala alba vel subcremea. Flores solitarii ebracteatae. Sepala integra post anthesin erecta persistentia. Folia (7-) 9-11-foliolata, foliola parva. Stipulae angustae. Hypanthia maturitatis nigra sicca 7
- + Petala purpurea, laete vel pallide rosea, interdum fere alba sed in alabastris semper rosea. Flores plerumque bracteatae. Hypanthia maturitate rubra vel purpurea, pulposa 8
7. Foliola glabra, margine plerumque simpliciter dentata 3. *R. spinosissima*
- + Foliola subtus plus minusve dense glandulosa, margine duplicato et glanduloso dentata 4. *R. tschatyrdagii*
8. Folia 5-rarius 3-foliolata, foliola coriacea, subrotunda vel elliptica, supra saturate viridia subtus pallida, nervis valde prominentibus. Flores plerumque solitarii. Sepala externa pinnata, post anthesin reflexa. Petala purpurea. Frutex humilis, rhizomate repente caules numerosos edente 9. *R. gallica*
- + Folia plerumque 7-9-foliolata, foliola haud coriacea. Characteres alii 9
9. Foliola sat dense tomentosa vel velutine pubescentia. Sepala integra vel appendicibus lateralibus paucis instructa, post anthesin erecta vel patentia demum persistentia 10
- + Foliola glabra vel leviter pubescentia, sin autem foliola plus minusve dense pubescentia tum sepala exteriora valde pinnata, post anthesin semper reflexa demum decidua 17
10. Foliola subtus eglandulosa, interdum ad nervum medium glandulis paucis tecta et margine glanduloso dentata 11
- + Foliola subtus plus minusve crebre glandulosa 13
11. Rami floriferi glabri. Aculei subarcuati parum compressi. Folia plerumque 7-foliolata, foliola ovata vel elliptica, supra velutino subtus tomentoso pubescentia. Bractae latae. Sepala integra vel appendicibus lateralibus paucis instructa, post anthesin erecta vel patentia demum persistentia. Petala pallide rosea 12. *R. boissieri*
- + Rami floriferi dense puberuli. Frutices humiles 12
12. Aculei subulati recti subcompressi basi parum dilatati. Folia 5-foliolata, foliola supra pubescentia, subtus fere tomentosa, margine simpliciter dentata. Sepala apice dilatata, externa appendicibus lateralibus paucis minutis late ellipticis, post anthesin erecta demum persistentia. Hypanthia setis glandulosis dense obsita 11. *R. vanheurckiana*
- + Aculei subulati recti tenues aciculares suinaequales. Folia 5-7-foliolata, foliola subrotunda vel late elliptica utrinque dense velutino pubescentia, margine fere simpliciter dentata.

- Sepala dense pubescentia integra vel externa appendicibus paucis angustissimis instructa, post anthesin erecta demum persistentia. Hypanthia setis glandulosis obsita rarius glabrata 10. *R. orientalis*
13. Rami floriferi dense cinereo-puberuli. Aculei heteromorphi inaequales 14
 + Rami floriferi glabri. Aculei conformes aequales 15
14. Cortex purpurascenti-cinnamomeus. Aculei recti aciculis et setis glandulosis intermixti. Folia 5-7-foliolata, foliola elliptica vel obovata, 2-4 cm lg. Stipulae dilatatae. Sepala externa appendicibus linearibus bene evolutis, post anthesin erecta persistentia. Petala laete rosea. Hypanthia setis glandulosis dense obsita 21. *R. hirtissima*
 + Cortex cinerascens. Aculei recti in ramis floriferis dilatati sursum directi aciculis et setis glandulosis intermixti. Folia 5-foliolata, foliola elliptica parva, 10-15 × 8-10 mm. Sepala integra vel externa appendicibus paucis angustissimis instructa. Petala laete rosea. Hypanthia setis glandulosis dense obsita 22. *R. bithynica*
15. Frutex humilis 30-50 cm alt. Cortex purpurascenti-cinnamomeus. Aculei subulati recti. Folia 5-7-foliolata, foliola late elliptica, supra subvelutina, subtus minus pubescentia fere glabra glandulis minutissimis stipitatis obsita. Sepala apice attenuata et dilatata, externa appendicibus lateralibus paucis 1-2 jugis anguste linearibus instructa. Petala laete rosea. Hypanthia setis glandulosis dense obsita 20. *R. hakkariensis*
 + Frutices magis elati. Foliola utrinque densius pubescentia. Sepala externa magis pinnata 16
16. Cortex purpurascenti-cinnamomeus levis nitidus. Rami erecti. Aculei subulati recti. Foliola utrinque griseo-pubescentia subtus glandulis crebris obsita. Sepala post anthesin erecta plerumque conniventia demum persistentia. Petala laete rosea. Frutex plerumque ad 1-1.5 m altus 19. *R. mollis*
 + Cortex cinnamomea-lutescens in ramis floriferis pallide viridis vel glaucus. Rami elongati subarcuati. Aculei subcurvati et leviter compressi a basi dilatati. Foliola utrinque griseo-pubescentia, subtus glandulis minutissimis obsita. Sepala post anthesin erecta vel patentia haud conniventia plerumque demum decidua. Petala pallide rosea. Frutex 1.5-2 m altus 18. *R. tomentosa*
17. Foliola utrinque vel tantum subtus glandulis plerumque valde odoratis et glutinosis dense obsita 18
 + Foliola eglandulosa interdum subtus ad nervos glandulis paucis et haud aromaticis tecta 23
18. Aculei heteromorphi, alii validi curvati vel uncinati, alii minuti recti aciculares et haud raro setis glandulosis intermixti. Frutices humiles ad 1 m alti 19
 + Aculei conformes. Frutices plerumque magis elati 21

19. Petala alba. Faux angusta. Styli glabri capitulum laxum formantes. Sepala post anthesin reflexa, externa pinnata, appendicibus lateralibus late lanceolatis glandulosis 26. *R. horrida*
 + Petala laete rosea. Faux lata. Styli pubescentes capitulum latum compactum formantes. Sepala post anthesin erecta demum persistentia 20
20. Folia parva, 7-10 mm lg., fere rotunda. Sepala integra vel appendicibus lateralibus paucis instructa 27. *R. glutinosa*
 + Foliola 15-20 × 10-13 mm, elliptica vel ovata. Sepala externa plerumque appendicibus lateralibus bene evolutis 28. *R. pulverulenta*
21. Faux lata. Styli pubescentes capitulum latum compactum formantes. Pedunculi breves. Sepala post anthesin patentia. Petala pallide rosea interdum fere alba. Aculei validi adunci vel arcuati. Folia 7-9-foliolata, foliola late elliptica vel late obovata plerumque utrinque glandulosa. Stipulae latae 23. *R. iberica*
 + Faux angusta. Styli glabri vel leviter pubescentes capitulum laxum formantes. Sepala post anthesin reflexa demum decidua 22
22. Folia 5-7-foliolata, foliola oblongo-elliptica utrinque attenuata. Sepala dorso plerumque eglandulosa. Petala pallide rosea fere alba 24. *R. agrestis*
 + Folia plerumque 5 foliolata, foliola late elliptica basi rotundata. Sepala dorso plerumque setoso-glandulosa. Petala rosea 25. *R. micrantha*
23. Sepala post anthesin erecta vel rarius horizontaliter patentia demum persistentia 24
 + Sepala post anthesin reflexa demum cito decidua, externa appendicibus lateralibus valde evolutis haud raro pinnatifidis 29
24. Sepala integra dorso glandulosa. Petala pallide rosea. Flores solitarii. Pedunculi breves. Aculei validi recti vel subarcuati basi valde dilatati. Folia 5-foliolata, foliola parva glabra ovata vel subrotunda, margine simpliciter vel duplicato et glanduloso dentata. Stipulae triangulares divergentes. Rami flexuosi. Tota planta glauco-pruinosa. Hypanthia parva, 6-7 mm in diam. 6. *R. elymaitica*
 + Sepala appendicibus lateralibus instructa 25
25. Folia 7-9(-11)-foliolata, foliola elliptica viridia glabra vel leviter pubescentia, margine simpliciter vel duplicato et glanduloso dentata. Stipulae latae. Sepala externa appendicibus lateralibus paucis 1-2 jugis instructa. Petala magna ad 5 cm lg., alba, in alabastris pallide rosea. Pedunculi breves. Hypanthia levia vel setulis glandulosis obsita. Cortex cinnamomeo-purpureus, nitidus. Aculei recti vel subarcuati basi dilatati 13. *R. woronowii*
 + Folia glaucescentia. Characteres alii 26

26. Folia 7-9-foliolata, foliola oblongo-ovata ad 3 cm lg., glabra subtus praesertim ad nervos glandulosa, margine glanduloso biserrata. Sepala fere integra, externa appendicibus lateralibus paucis linearibus vel filiformibus instructa, post anthesin erecta demum persistentia. Petala magna pallide rosea. Aculei recti ad basin modice dilatati saepe oblique sursum directi 16. *R. roopae*
- + Folia 5-7-foliolata, foliola eglandulosa 27
27. Frutex humilis caudice repente. Aculei ad ramos parcissimi subulati breves recti. Folia 5-7-foliolata, foliola concoloria ovata argute et simpliciter serrata. Stipulae ramorum floriferorum subdilatatae. Flores solitarii. Pedunculi brevissimi. Sepala apice folioso dilatata externa pinnata, corollam purpuream superantes 15. *R. djimilensis*
- + Frutices elati. Aculei plus minusve arcuati 28
28. Aculei rari minuti gracili adunci basi valde elongati. Folia 7-foliolata, foliola magna ovata glaberrima acuta, margine subsimpliciter serrata. Stipulae dilatatae auriculis acuminatis. Pedunculi breves. Sepala puberula dorso parcissime glandulosa, externa plus minusve pinnata, post anthesin erecta demum decidua. Hypanthia magna levia 14. *R. macrocarpa*
- + Aculei subarcuati basi dilatati subrotundi. Folia 5-7-foliolata, foliola late elliptica, 20-30 × 12-20 mm, glaucopruinosa, margine simpliciter vel duplicato-serrata. Flores solitarii. Pedunculi 10-15 mm lg. Sepala utrinque pubescentia dorso setis glandulosis obsita, externa appendicibus lateralibus angustis 1-2-jugis instructa, post anthesin patentia. Hypanthia late-elliptica setis glandulosis obsita vel levia 17. *R. antalyensis*
29. Foliola glaberrima 29. *R. canina*
- + Foliola utrinque vel tantum subtus plus minusve pubescentia 30
30. Foliola eglandulosa 30. *R. corymbifera*
- + Foliola subtus sparse glandulosa 31. *R. klukii*

SECT. SYNSTYLAE DC.

1. *R. sempervirens* L., Sp. Pl. 492 (1753).

Typus: "Habitat in Germania".

A2 (E) Istanbul: Zekerie, *Aznavour* (G). A2 (A) Pachabagtché (Paşabahçe), *Aznavour* (G); Scoumroukeuy (Uskumruköy), *Aznavour* (G).

Europa australis et Africa borealis.

2. *R. phoenicia* Boiss., Diagn. ser. 1, 10: 4(1849).

Syn.: ? *R. grisebachii* Boulenger in Ann. Soc. Sc. Brux. 53: 142 (1933) et in Bull. Jard. Bot. Brux. 9: 213 (1933).

Syntypi: [Lebanon] Hab. in sepibus humidis phoeniciae littoralis calidioris circa Beyrout, Tripoli, etc. vulgaris, *Boissier*. [Turkey] in Cilicia, *Kotschy* 185.

A1 Balıkesir: Marmara adası, *A. Baytop* 13708. A2 (E) Istanbul: Rumeli Hissar, *B. Post* (G). C5 İçel: *Siehe* 46 (LE); Adana: Sencan dere at Suphandere, 1000 m, *Davis, Dodds & Çetık*, *D.* 19617. C6 Gaziantep: Gaziantep, 853 m, *E. K. Balls* 2403. Syria borealis, Libanon.

Secundum Boulenger *R. grisebachii* foliolis supra glabris et columna styliorum pubescente a *R. phoenicia* differt.

SECT. PIMPINELLIFOLIAE DC.

3. *R. spinosissima* L., Sp. Pl. 491 (1753).

Syn.: *R. pimpinellifolia* L., Syst. Nat. ed. 10, 2: 1062 (1759); L., Sp. Pl. ed. 2, 703 (1762).

Typus: "Habitat in Europa".

A9 Kars: mountains E of Kağızman, 8 km from Akçay to Cumaçay, 1650 m, *Davis* 46752; 17 km from Akçay to Cumaçay, 2070 m, *Davis* 46725; Sarikamış, 2300 m, *Davis & Hedge*, *D.* 30765; 7 km from Karakurt to Kağızman, in Aras gorge, 1450 m, *Davis* 46453. B8 Erzurum: Palandöken Da., 28 km from Çat to Erzurum, 2300 m, *Davis* 47394; 10 km N of Hınıs, 1630 m, *Davis* 46236; Kop Da., Baiburt, *E. K. Balls* 1448. B9 Ağrı: 3-5 km from Tutak to Hamur (Murat valley), 1600 m, *Davis* 44037; 5-10 km from Hamur to Tutak, 1650 m, *Davis* 44115; 15 km from Eleşkirt to Horasan E of Tahir pass, 2200 m, *Davis* 47125.

Europa, Sibiria occidentalis, Asia Media, Caucasus.

4. *R. tschatyrdagii* Chrshan. in Not. Syst. (Leningrad) 15: 118 (1953).

Syn.: *R. myriacantha* auct. non DC., Fl. Franc. ed. 3, 4: 439; *R. pimpinellifolia* L. var. *myriacantha* auct. non Ser. in DC., Prodr. 2: 608 (1825). Ic.: Chrshan., Not. Syst. (Leningrad) 15: 119 (1953).

Typus: Crimea; "Tauria in monte Tschatyrdag, planities inferior, in rupes-tribus 14 vii 1949, *Poshidaeva*" (Herb. Horti Nikitensis).

A7 Gümüşane: Kovans, Bayburt, 1650 m, *Davis & Hedge*, *D.* 31931; Gümüşane to Bayburt, 2560 m, *E. K. Balls* 2033; Kop Köyü, 1300 m, *Tobey* 2054; Bayburt, Maden, *T. Baytop* 14356. A9 Kars: Kars, 2438 m, *Tong* 429. Tauria, Caucasus.

Secundum Chrshanovsky a *R. myriacantha* aculeis monomorphis, foliis majoribus et pedicellis longioribus differt.

SECT. LEUCANTHAE M. POP. & CHRSHAN.

5. *R. pisiformis* (Christ) Sosn. in Izv. Arm. Fil. Arm. Acad. S.S.R. 8: 69 (1942); Mandenova in Nov. Syst. (Leningrad) 1965: 144 (1965).

Syn.: *R. cinnamomea* L. β *pisiformis* Christ in Boiss., Fl. Or. Suppl. 210 (1888); *R. cinnamomea* auct. non L., Syst. Nat. ed. 10, 2: 1062 (1759); *R. cinnamomea* L. sensu Boiss., Fl. Or. 2: 676 (1872) p.p.; *R. cinnamomea* L. sensu Radde, Mus. Cauc. 2: 87 (1901) p.p.; *R. cinnamomea* L. sensu Boulenger in Bull. Jard. Bot. Brux. 14, 2: 138 (1936) p.p.

Typus: Turkey; "Armenia Turcica, *Aucher* 1431".

A7 Gümüşane: Kovans, Bayburt, 1650 m, *Davis & Hedge*, D. 31930; Maden khan to Kop Khan, Bayburt, 1706 m, *E. K. Balls* 1770. A9 Kars: Ob. Arax, (Aras) *Radde* (TGM); Kasikibaran, *Radde* (TGM: TBI). B8 Erzurum: 28 km from Varto to Hınıs, 1700 m, *Davis* 46260. B9 Ağrı: Eleşkirt-Tutak road, *Tong* 375. Bitlis: Suphan Da. above Adilcevaz, 2895 m, *Davis & O. Polunin*, D. 24704. Van: 11 km W of Hoşap, 1950 m, *Davis* 44687; Hoşap-Havasor, *Davis & O. Polunin*, D. 23302.
Species endemica.

SECT. ELYMAITICAE BOISS.

6. *R. elymaitica* Boiss. & Haussk. in Boiss., Fl. Or. 2: 675 (1872).
Syn.: *R. elymaitica* Boiss. & Haussk. var. *biserrata* Lonacz. in Monit. Jard. Bot. Tiflis 30: 113 (1913).
Typus: Iran; "In dumosis alpinis Teng Nalli Persiae austro-occidentalis, 2133 m, *Haussknecht*".
A8 Artvin: Yusufeli to Sarigöl (Hevek Dere), 800 m, *Davis* 47686. A9 Artvin: ad ripam dextram fl. Coroch (Çoruh), inter Zap et Salicor, *Woronow* 6045 (TBI); inter p. Zria et Schurtum, *Woronow* (TBI).
Irania austro-occidentalis.

Secundum Boissier "sepala (ex affinitate cum *R. albicanti* probabiliter etiam fructu maturo) reflexa", sed sepala hypanthii maturitate semper erecta persistentia.

SECT. LUTEAE CRÉP.

7. *R. rapinii* Boiss. & Bal. in Boiss., Diagn. ser. 2, 6: 72 (1859).
Syn.: *R. bungeana* Boiss. & Buhse, Aufz. Transk. Pers. 84 (1860).
Typus: Turkey; "Hab. ad sepes Phrygiae prope Ouchak (Uşak), 914 m, *Balansa*".
A4 Çankiri: Çankiri c. 800–900 m, *J. & F. Bornmüller* 13425 (LE). A5 Çorum: Hacilar Hani, Sungurlu, *M. Tanker* 1483; 3 miles E Merzifon, 800 m, *Coode, Jones & Tobey* 1828; 37 km from Çorum to Ankara, 975 m, *T. Baytop* 12730. A7 Gümüşane: Bayburt, Osluk Köprüsü, 1750 m, *Tobey* 2158. A9 Kars: nr. Oltu, *Sosnovsky* (TBI); B4 Ankara: near Kalecik, in ravine facing N, 1000 m, *Davis* 21400; Beynam Ormani, *T. Baytop* 12730; Angora, bord du torrent a Tchenghi-Kaya (Çengi Kaya), *Aznavour* (G); ad Angora, *J. Bornmüller* 3034. B5 Yozgat: Yozgat, *Curtis* 100; 20 km from Yozgat towards Yerköy, 1100 m, *Coode & Jones* 1524. Nevşehir: Göreme, 1130 m, *Davis* 42206. B7 Sivas: Divriği, *T. Baytop* 13038. Malatya: Kangal, Hekimhan, 1300 m, *Stainton & Henderson* 5398.
Caucasus, Transcaucasia australis (Armenia et Nachitschevan); Irania borealis.

8. *R. foetida* Herrm., Dissert., 18 (1762).
Syn.: *R. lutea* Mill., Gard. Dict. No. 11 (1768).
var. *foetida*

A4 Ankara: Kizilcahamam Caurhosi, Böl-sef (?), *Coll. ignot.* B9 Van: 5–8 km from Van to Değirmenköy, 1900 m, *Davis* 44436. C5 Niğde: Koçak köyü near Ulukışla, *A. & T. Baytop* 7006. C6 Gaziantep: Gaziantep, 874 m, *E. K. Balls* 828; Telhöyük, between Gaziantep and Pazarcik, 800 m, *Davis &*

Hedge, D. 27807. C8 Mardin: Senar, *Sintenis* 948. C10 Hakkari: Nehil Çay, 48–50 km from Hakkari to Yüksekova, 1600–1700 m, *Davis* 44901.

var. *bicolor* (Jacq.) Willmott, *The genus Rosa* 267 (1911).

Syn.: *R. bicolor* Jacq., *Hort. Bot. Vindob.* I: pl. 1 (1770).

B9 Van: 5–8 km from Van to Değirmenköy, 1900 m, *Davis* 44438. C6 Gaziantep: Gaziantep, 874 m, *E. K. Balls* 828a.

Caucasus (*Transcaucasia australis*), Irania, Afganistania, Asia Media.

Culta et subspontanea.

SECT. ROSA

9. *R. gallica* L., *Sp. Pl.* 492 (1753).

Typus: "Habitat in Gallia".

A2 (E) Istanbul: Sicanlehan Ormani, Kemerburgaz, *Yaltirik* 12703; Vigne Féuerli, Therapia (Tarabya), *Aznavour* (G); Yerlik, Kilios, *Aznavour* (G); Zekir (Zekiriyaköy), *Aznavour* (G); Scoum, (Uskumruköy), dunes, *Aznavour* (G); Kilios-Irnev, *Aznavour* (G). A2 (A) Istanbul: Aslandagh au dessus de Tachedélène (Taşdelen), *Aznavour* (G); Alemdağ near summit, 380 m, *Demiriz* 4944. A5 Sinop: Ince Burun, 40 m, *Tobey* 1065. Europa, Caucasus.

SECT. ORIENTALES CRÉP. EMEND. MANDEN.

Frutices humiles. Aculei recti subulati interdum subinaequales. Rami floriferi dense sericeo puberuli. Folia 5–7-foliolata, utrinque velutino vel tomentoso pubescentia semper eglandulosa. Sepala integra vel externa appendicibus lateralibus paucis instructa, post anthesin erecta demum persistentia.

Typus sectionis: *R. orientalis* Dupont.

10. *R. orientalis* Dupont ex Ser. in DC., *Prodr.* 2: 607 (1825).

Syn.: ? *R. armena* Boiss., *Fl. Or.* 2: 674 (1872).

Species ex Irania descripta est.

B9 Bitlis: slopes below summit of Kambos Da., 2300 m, *McNeill* 268. C3 Antalya: Ak Da., 2300 m, *Davis* 14393. C4 İçel: Olucak yayla, between Ermenek and Anamur, 2000 m, *Davis* 16306. C5 Seyhan (Adana): distr. Saimbeyli, Bozoğlan Da. above Obruk yayla, 2000 m, *Davis*, *Dodds*, *Çetik*, D. 19724.

Irak (montes Kurdistanicae), Irania borealis.

11. *R. vanheurckiana* Crép. in Boiss., *Fl. Or.* 2: 683 (1872).

Syn.: *R. coriifolia* Fries β *vanheurckiana* (Crép.) Christ in Boiss., *Fl. Or. Suppl.* 216 (1888); *R. atropatana* Sosn. in *Izv. Azerb. Fil. Acad. S.S.R.* 10: 22 (1944); *R. echinocarpa* Sosn. nomen nudum.

Syntypi: [Turkey B8 Muş.] In alpihus prov. Musch (Muş) Armeniae australis ad 1829 m, *Kotschy* 89; in valle Merga Sauk, 2133 m, *Kotschy* 369 (sub *R. orientalis*).

B8 Bingol: prope Boglan 1371 m, *Kotschy* 540 (LE). B9 Ağrı: d. Sulucem (Musun), S end of Balik G., 2300 m, *Davis* 47264. Bitlis: Gralev, Nemrut Da., *B. V. D. Post* 713 (G). C9 Hakkari: 6 km to Hakkari to Kaval (Piyanis), 2050 m, *Davis* 45430.

Caucasus: Transcaucasia australis (Armenia et Nachitschevan).

SECT. CANINAE DC. SUBSECT. CORIIFOLIAE CHRSHAN.

12. *R. boissieri* Crép. in Bull. Soc. Roy. Bot. Belge 8: 340 (1869); Boiss. Fl. Or. 2: 682 (1872).

Syn.: *R. coriifolia* Fries β *boissieri* (Crép.) Christ in Boiss., Fl. Or. Suppl. 216 (1888).

Typus: [Turkey A8 Rize] Vallée de Djimil (Cimil), 1829 m, *Balansa* 514. A9 Kars: mountains E of Kağızman, 17 km from Akçay to Cumaçay, 2070 m, *Davis* 46723. C9 Hakkari: Zap gorge nr. Dezi, 1400 m, *Davis* 24513. Caucasus.

13. *R. woronowii* Lonacz. in Acta Hort. Bot. Univ. Imp. Jurjev. 13, 2: 107 (1912) et in Monit. Jard. Bot. Tiflis 30: 11 (1913).

Syntypi: [Turkey A8 Çoruh] Distr. Artvin, Sakurtul coll. *ignot.*; [Georgia] Adsharia, mons Goma, *N. Popov* 2059 (TBI).

A7 Giresun: Balaban dagliari above Tamdere, 1700 m, *Davis*, *Dodds & Çetik*, *D.* 20649. Gümüşane: Tempede, *Sinten* 7564; Haldizan, N of Bayburt, 2743 m, *E. K. Balls*. A9 Çoruh: between Sakurtele and Dzinal, *Vvedensky* (var. *subbidentata* Lonacz.—TBI); Sakurtele, *Vvedensky* 4142 (var. *setosa* Lonacz.—TBI). Kars: mountains E of Kağızman, 17 km from Akçay to Cumaçay, 2070 m, *Davis* 46723. B9 Ağrı: 15 km from Eleşkirt to Horasan E of Tahir pass, 2200 m, *Davis* 47143; mountain stream, *Tong* 372. Caucasus (Transcaucasia australis—Georgia et Armenia).

14. *R. macrocarpa* Boiss., Fl. Or. 2: 684 (1872).

Typus: [Turkey A8 Rize] in valle Djimil Ponti Lazici, 1829 m, *Balansa*. A4 Zonguldak: Keltepe above Karabük, 1800 m, *Davis & Coode*, *D.* 38858. A9 Kars: 7 km from Karakurt to Kağızman in Aras gorge, 1450 m, *Davis* 46496; gorge above Kötek, 36 km from Benliahmet to Kağızman, 1500 m, *Davis* 46655; Yağmurlu Da. above Karaorgan, 2000 m, *Davis & Hedge*, *D.* 32624.

Species endemica e grege *R. afzeliana* Fries.

15. *R. djimilensis* Boiss., Fl. Or. 2: 673 (1872).

Typus: [Turkey A8 Rize] "in valle Djimil (Cimil) Ponti Lazici, 1829 m, *Balansa*".

Species ex unico specimine nota.

16. *R. roopae* Lonacz. in Acta Hort. Bot. Univ. Imp. Jurjev. 13, 2: 107 (1912).

Typus: [Turkey A9 Kars] "Armenia rossica, Enikey, 9 vii 1910, *Tatiana Roop*".

A8 Erzurum: 47 km from Erzurum to Tortum, 1930 m, *Davis* 47504.

Species endemica.

17. *R. antalyensis* Manden., sp. nov.

Haec species *R. macrocarpae* Boiss. affinis est, sed ab ea et aliis speciebus e grege *R. afzelianae* Fries aculeis subarcuatis, sepalis subintegris post anthesin patentibus differt.

Frutex mediocris, trunculis et ramis veterioribus cortice cinereo, ramulis floriferis cortice olivaceo-luteolo tectis. *Aculei* subarcuati fere recti basi dilatati subrotundi horizontaliter vel oblique sursum directi. *Folia* 5-7-foliolata, foliola late elliptica 20-30 × 12-20 mm, utrinque glabra et glauco-pruinosa, margine duplicato vel simpliciter dentata, rhachis glabra, purpureo colorata aculeolis parvis et pilis glanduloso stipitatis obsita. *Stipulae* auriculato-dilatatae margine dentatae. *Flores* solitarii. *Pedicelli* 10-15 mm longi, pilis paucis glanduloso-stipitatis obsiti. *Sepala* subintegra, externa appendicibus lateralibus 1-2-jugis anguste linearibus instructa, utrinque puberula dorso setis glandulosis obsita, post anthesin patentia. *Petala* ignota. *Discum* planum, capitulum stigmatum pubescens. *Hypanthia* elliptica 18 × 10 mm, setis glandulosis paucis obsita.

C3 Isparta: Dedegöl Da., 1700 m, Oruz gaz yayla, 1 vii 1949, *Davis* 15943. Antalya (Pisidia): distr. Gebiz, 1700 m, Bozburun Da. near yayla, 25 vii 1949, *Davis* 15555 (holo—E).

SUBSECT. VESTITAE CHRIST

18. *R. tomentosa* Sm., Fl. Brit. 2: 539 (1800).

Species ex Anglia descripta est.

B10 Kars: Aralık, Küçük Ağrı Da. near Serdar Bulak, 2300 m, *Davis* 46902. Europa, Caucasus.

19. *R. mollis* Sm. in Sowerby, Engl. Bot. 35, t. 2459 (1812).

Species ex Anglia descripta est.

A5 Kastamonu: Tosya, Giaurdagh (Gavur Da.), *Sintenis* 4860 (LE). A6 Sivas: Yildiz Da., Sariyer, 1700 m, *Tobey* 2364. A7 Gümüşane: Gümüşane, *Sintenis* 7567 (LE). B8 Muş: 14 km from Varto to Hınıs, E side of Bingöl Da., 2050 m, N side of pass, *Davis* 46213. Europa, Caucasus.

20. *R. hakkariensis* Manden., sp. nov.

A *R. molli* Sm. foliolis minus pubescentibus subtus glandulis minutissimis stipitatis obsitis et sepalis subintegris appendicibus lateralibus 1-2 jugis instructis, post anthesin patentibus differt.

Frutex humilis 30-50 cm altus. *Cortex* purpurascens. *Aculei* subulati recti, basi subdilatati horizontaliter directi. *Folia* 5-7-foliolata, foliola late elliptica, 25-30 × 17-20 mm, supra griseolo viridia molliter pubescentia, subtus pallidiora subglabra glandulis minutissimis stipitatis obsita, margine inaequaliter duplicato serrato-dentata; rhachis pubescens et glandulis stipitatis haud dense obsita. *Stipulae* auriculato-dilatatae glabrae, margine glandulosae. *Flores* solitarii. *Pedicelli* 18-20 mm longi, haud dense pubescentes. *Sepala* apice longe attenuata et dilatata, externa appendicibus lateralibus 1-2-jugis linearibus instructa, utrinque dense velutine pubescentia dorso setis glandulosis dense obsita, post anthesin patentia. *Petala* laete rosea. *Discum* planum. *Capitulum* stigmatum latum pubescens. *Hypanthia* (haud matura) elliptica apice subcontracta, 10 × 7 mm, setis glandulosis dense obsita.

C10 Hakkari: Cilo Da. between Diz deresi and Cilo yayla, 2438 m, rocky slopes of gorge, fls. pink, 10 viii 1954, *Davis & Polunin*, *D.* 24247 (holo—E). Species endemica.

21. *R. hirtissima* Lonacz. in *Acta Hort. Bot. Univ. Imp. Jurjev.* 13, 2: 107 (1912).

Typus: [Caucasus] Abchasia montes Erzoch, zona subalpina, 5 vii 1902, *G. Woronow* (LE).

A8 Çoruh: Artvin, hill above town, *Stainton & Henderson* 5914.

Caucasus occidentalis.

22. *R. bithynica* Manden., *nomen novum*

Syn.: *R. olympica* (Clem.) Burnat & Gremlé, *Ros. Orient.* 80 (1877) non *R. olympica* Donn, *Hortus Cantabr.* ed. 6, 144 (1811); *R. pygmaea* Bieb. var. *olympica* Clem., *Sert. Olymp.* 40 (1855); *R. glutinosa* Sibth. & Sm. β *tomentella* Boiss., *Fl. Or.* 2: 679 (1872); Boulenger in *Bull. Jard. Bot. Brux.* 13, 3: 219 (1935); *R. orientalis* Dupont β *olympica* Déségl., *Cat. Rais.* 109 (1877).

Typus: [Turkey A2 (A) Bursa] In rupestribus alpin. *Olymp. Bithyn.* (Ulu Da.), 19 viii 1840, *Clementi* (iso—E).

Species endemica.

A *R. hirtissimae* Lonacz. foliolis minoribus et sepalis fere integris differt. A *R. orientale* Dupont foliolis subtus glandulosis et aculeis rectis acicularis et setis glandulosis intermixtis differt. A *R. glutinosae* Sibth. & Sm. ramis floriferis puberulis et foliolis tomentosus differt.

SUBSECT. RUBIGINOSAE CRÉP.

23. *R. iberica* Stev. in *Bieb., Fl. Taur.-Cauc.* 3: 345 (1819).

var. *iberica*

A6 Sivas: Yildiz Da., Sariyer, 1700 m, *Tobey* 2364. A9 Kars: mountains E of Kağızman, 8 km from Akçay to Cumaçay, 1650 m, *Davis* 46800. B9 Van: 26 km from Başkale to Hoşap, 2400 m, *Davis* 45894.

Caucasus.

var. *anatolica* (Crép.) Manden., *comb. nova*

Syn.: *R. anatolica* Crép. in *Bull. Herb. Boiss.* 1: 159 (1893) in observ.

Aculeis tenuioribus arcuatis et sepalis minus pinnatis a var. *ibericae* differt.

A5 Amasya: Pontus Galaticus in silvaticis subalpinis Sana Da., 1400–1600 m, 15 v 1890, *J. Bornmüller* 2364 (iso—LE). A8 Gümüşane: Bayburt, Maden, *T. Baytop* 14356.

Varietas endemica.

24. *R. agrestis* Savi, *Fl. Pisan.* 1: 475 (1798).

Species ex Italia descripta est.

A1 (A) Balıkesir: Marmara adasi, *A. Baytop* 13624. A2 (E) İstanbul: Kodjatache Da. (Kocataş Da.), près Fistihson, *Aznavour* (G); Kodjatache au dessus de Büyükdere, *Aznavour* (G).

Europa media et australis.

25. *R. micrantha* Smith in Sowerby, Engl. Bot. 35 t. 2490 (1812).

Species ex Anglia descripta est.

A2 Bursa: Keschisch dagh (Keşiş Da.), 2000 m, 1891, *J. Bornmüller* 4422 (LE).

Europa media et australis, Caucasus.

26. *R. horrida* Fischer, Cat. Hort. Gorenk. 66 (1812).Syn.: *R. ferox* Bieb., Cent. Pl. Ross. 1: t. 37 (1810) non Lawrance, Coll. Roses t. 42 (1799); *R. turcica* Rouy., Ill. Pl. Rar. t. 134 (1896).

Species ex Tauria descripta est.

A1 (E) Kirklareli: Between Cakili and Vize, *A. Baytop* 13183. A2 (E) Istanbul: Şişli to Kağıthane, *Aznavour* (G); Halkali, *Aznavour* (G); entre Kiathanékeuy et Chichli (Şişli) *Aznavour* (G); collines Halkali, *Aznavour* 847 & bis (G). A2 (A) Istanbul: Yakack, *Aznavour* (G); Dracos Kartal (Yakadjik ?), *Aznavour* (G); (Şişli-Ihlamur), Aydos, *A. & T. Baytop* 3814. A5 Kastamonu: Tosya, *J. Bornmüller* 4229 (LE); Kastamonu, *Sintenis* 5071 (LE). Amasya: Amasya, *J. Bornmüller* 2367 (LE). A6 Amasya: Erbaa above Kozlu, 650 m, *Tobey* 2229. B2 Kütahya: Gediz to Çavdarhisar, 1100 m, *Davis & Coode*, *D.* 36985.

Caucasus boreali-occidentalis, Tauria, Peninsula Balcanica.

27. *R. glutinosa* Sibth. & Sm., Fl. Gr. 1: 348 (1809); Boiss., Fl. Or. 2: 679 (1872) p.p.

Species ex Creta descripta est.

A3 Bolu: Ala Da. on Kartal Kaya, 2100–2200 m, *Davis & Coode*, *D.* 37338. A4 Kastamonu: N side of Ilgaz Da., 1950 m, *Davis*, *Coode & Yaltirik*, *D.* 38353; Tosya, *Sintenis* 4602 (LE). A7 Gümüşane: Gümüşane, *Sintenis* 6254 (LE). A9 Kars: W of Kars, 1700 m, *Davis & Hedge*, *D.* 32582. B1 Balıkesir: m. İda (Kaz Da.), *Sintenis* 1883: 480 (LE). B4 Ankara: Kızılcahamam, Bulak tepe üstü, *Uluocak*. B7 Tunceli: Munzur Da. above Ovacık, 2000 m, *Davis & Hedge*, *D.* 31185. B9 Bitlis: Karz Da. above Kotum, 1981 m, *Davis & Polunin*, *D.* 22218; Karz Da. above Kamer, 2300 m, *Davis & Polunin*, *D.* 24601; Kambos Da. above Hürmüz, 1676 m, *Davis & Polunin*, *D.* 23436. C2 Muğla: Baba Da., *Davis* 13652; Girdev Da., 1600 m, above Döğer, *Davis* 13810. C3 Isparta: Davros Da., 1500 m, *A. & T. Baytop* 4277. Antalya: Tahtali Da., 2100 m, *Davis* 14166, 14201. C4 Konya: Karançe dere between Geyik and Pozkan, 1829 m, *Davis* 14618; Uçpinar (Üğpinar) to Sandjak yayla, 2000 m, *Davis* 14585. C5 Niğde: Ala Da., Narpiz gorge, 2438 m, *Wood & Gibson* 242; Hasan Da. above Taşpinar, 1700 m, *Davis*, *Dodds & Çetlik*, *D.* 19025; Berujuk (Bürücek), Asir Gediği, 1524 m, *E. K. Balls* 1299; Namrun, 1900 m, *Siehe* 212; Bulghar Maaden, *Siehe* 247 (LE). C6 Maraş: distr. Çardak, Berit Da., 2000–2100 m, *Davis*, *Dodds & Çetlik*, *D.* 20372. C9 Hakkari: Kocanis, 2285 m, *Davis & Polunin*, *D.* 24312.

Species haec regio mediterranea orientalis incola est.

28. *R. pulverulenta* Bieb., Fl. Taur.-Cauc. 1: 399 (1808); Fl. Taur.-Cauc. 3: 344 (1819).Syn.: *R. glutinosa* auct. fl. Cauc. non Sibth. & Sm., Fl. Gr. 1: 348 (1809).

Typus: Caucasus; "in collibus circa acidulam Narzana Caucasi subalpini". (LE).

A9 Kars: mountains E of Kağızman, N side of pass between Akçay and Cumaçay, 2350 m, *Davis* 46762. B10 Kars/Ağri: Mt. Ararat (Ağri Da.), *Szovits* (LE); Ararat, ex Herb. *Ledeb.* (LE); m. Ararat major (Büyük Ağri Da.), *Lipsky* (LE). B9 Ağri: d. Saluçem (Musun), S end of Balik G., 2300 m, *Davis* 47056, 47157, 47186, 47263; Doğubayazit, Hama Oegi, *A. & T. Baytop* 4856.

Caucasus, Irania borealis.

SUBSECT. CANINAE

29. *R. canina* L., Sp. Pl. 491 (1753).

Typus: "Habitat in Europa".

Turcia europaea, Anatolia borealis, occidentalis (Lydia), australis (Isauria), centralis (Galatia) et orientalis (Kurdistan et Armenia). Europa, Caucasus, Tauria, Africa borealis, Irania, Syria occidentalis et Asia centralis.

30. *R. corymbifera* Borkh., Vers. Forstbot. Besch. 319 (1790).

Syn.: *R. dumetorum* Thuill., Fl. Paris. éd. 2, 250 (1798-1799); *R. collina* Bieb., Fl. Taur.-Cauc. 1, 399 (1808); *R. canina* L. β *collina* (Bieb.) Boiss., Fl. Or. 2: 685 (1872).

Species ex Germania descripta est.

Turcia europaea, Anatolia borealis, occidentalis (Mysia, Lydia), australis (Taurus), centralis et orientalis. Europa, Caucasus, Tauria, Africa borealis, Irania, Syria occidentalis et Asia centralis.

31. *R. klukii* Bess., Cat. Hort. Crem. 118 (1816); Bess., Enum. pl. Pod. Volh. 46, 47 (1822).

Species ex Rossia australis (Ukraina) descripta est.

A8/9 Çoruh: Artvin prope p. Dabatsvril, *Woronow* (TBI); prope p. Kucen, *Vvedensky* (TBI).

Europa, Tauria, Caucasus.