

- 18. Astragalus stella Gouan**, Ill. observ. bot.: 50. 1773 $\equiv$ *A. stellatus* Lam., Fl. Franc. 2: 641. 1778, nom. illeg. $\equiv$ *Tragacantha stella* (Gouan) O.Kuntze, Revis. Gen.: 948. 1891. **Type:** *Tournefort* (non vidi).
- = *A. stella* var. *acutifolius* DC., Astragal.: 105. 1802 $\equiv$ *Tragacantha acutifolia* (DC.) O.Kuntze, Revis. Gen. 2: 940. 1891. **Holotype:** (P-JU!)
- = *A. arenicola* Pomel in Bull. Soc. Sci. Phys. Algérie 11: 184. 1874. **Syntypes:** Arbaouat;

- Brezina (G!); Maïa; Mehaïguen, all leg. *Pomel*. **Lectotype:** should be selected out of the cited material in the Montpellier Herbarium.
- = *A. sesameus* var. *ambiguus* Rouy, Fl. France 5: 163. 1899 ≡ *A. ambiguus* (Rouy) Sennen in schedis impr. ad F. SENNEN, Plantes d'Espagne No. 4334. 1922. **Syntypes:** Hautes Alpes, entre Aspremont et La Batie-Monsaléon, *Girod*; Saint-Siméon sur le Pech Auriol, *Biche*; env. de Béziers, *Liobérus* (not seen).
 - = *A. cruciatus* var. *polyactinus* Hochr. in Ann. Conserv. Jardin bot. Genève 7-8: 170. 1904. **Holotype:** Oran, Tiloula près d'Aïn Sefra, 1200 m, 18.5.1901, *Hochreutiner* 308 (G!).
 - = *A. tribuloides* Del. var. *medians* Maire in Bull. Soc. Hist. Nat. Afr. Nord 27: 222. 1936. **Syntypes:** [Maroc] Anti-Atlas, Igherm, *Emberger & Maire*; Siroua, *Peltier*; Grand Atlas, Goundafa, *Reese*. **Lectotype** (here designated): Maroc, Massif du Siroua, IV.1935, *Peltier* (MPU!; Iso: P!).
 - = *A. cruciatus* var. *algeriensis* Sirj. in Repert. Spec. Nov. Regni Veget. 53: 228. 1944. **Syntypes:** *Balansa* Pl. d'Alg. 1853 sine nr.; et anno 1852 nr. 446; *Pitard* Pl. de Tunisie 85. **Lectotype** (here designated): *Balansa* Pl. d'Algérie 1853 s.n. (W!; Iso: G!, P!)).
 - = *A. cruciatus* var. *canariensis* Sirj. in Repert. Spec. Nov. Regni Veg. 53: 228. 1944. **Lectotype** (here designated): Ins. Fuerteventura, pr. Gran Tarajal, 11.6.1914 *Burchard* 348 (W!; Iso: K!, M!).
 - *A. polyactinus* Boiss., Fl. Or. 2: 226. 1872, nom. invalidum (not accepted by the author).

Figures: BONNIER, Fl. compl. ill. France, Suisse et Belgique vol. 3: pl. 144, fig. 781. 1914.

Plants branched at the base or unbranched, covered with 0,3-1,9 mm long, white hairs, at the nodes, stipules and in the inflorescence mostly also with black hairs. **Stems** 4-36 (- 50) cm long, procumbent to ascending, finely sulcate, covered with appressed to semipatent, sometimes also with patent hairs, at the nodes and stipules the hairs are mostly denser. **Stipules** green or greenish, (2,5-) 3-6 (-7) mm long, narrowly triangular, acuminate or sometimes long cuspidate, adnate at a length of 0,8-1,5 (-2) mm to the petiole, otherwise free, densely covered with white or mixed white and black hairs. **Leaves** 2-7,5 (-9) cm long; petiole 0,2-1 cm long, like the rachis covered with appressed to semipatent hairs. **Leaflets** (5-) 7-10 (-11) paired, 2,5-10 (-16) mm long and 1,5-3,5 (-5) mm broad, elliptic to narrowly oblong, rarely narrowly obovate, obtuse or slightly retuse, appressed hairy on both sides, mostly more densely on lower side. **Inflorescences** with a 2-11,5 cm long peduncle, hairy like the stem but more densely hairy and with more black hairs towards the inflorescence; flowers 4-11 (-15) in a rather dense head. **Bracts** membranous, 1,5-3 (-3,5) mm long, lanceolate acuminate, with mixed white and black hairs. **Flowers** nearly sessile. **Calyx** 5-7 mm long, campanulate, covered with appressed to subappressed white and black hairs; teeth subulate, 1,5-3 (-3,8) mm long, shorter to nearly as long as the tube. **Corolla** yellow or violet. **Standard** (5,5-) 7-10 (-11) mm long and 2-4 mm wide, narrowly elliptic, emarginate at the apex, contracted into a narrow claw at the base. **Wings** (5-) 6-8 mm long, limb narrowly oblong, obliquely bilobed to nearly rounded at the apex, (2-) 3-4 mm long and 1-1,1 mm broad; auricle 0,8-1 mm long, claw (2,5-) 3-4 mm long. **Keel** (4-) 5-6 mm long, limb triangular-obovate, with lower edge broadly rounded and upper edge slightly rounded, acute at the apex, 1,5-2 mm long and 1-1,3 mm broad; auricle very short, claw (2-) 2,5-3 mm long. **Staminal tube** ± straightly cut. **Ovary** sessile or shortly stalked, hairy; style short, glabrous. **Legumes** star-like spreading or obliquely erect, sessile or with a stalk up to 1 mm long, erect, straight or slightly curved, lanceolate, rounded and very slightly enlarged at the base, 10-15 mm long, 2,5-3 mm high and 3-4 mm broad, carinate on ventral side, deeply and narrowly grooved on dorsal side, ending into a short and nearly straight or up to 1-2 mm long and curved or nearly hooked beak; valves leathery, nearly flat, covered with

two kinds of hairs (double indumentum): densely with short appressed 0,05-0,2 mm long hairs and more loosely with much longer semipatent to patent up to 1,9 mm long hairs, sometimes with curved apex. Legumes opening only along the ventral suture, the septum 1-1,2 mm broad, but fully bilocular because of the deeply intruded dorsal groove. Seeds 4-7 in each locule, 2-3 mm long and 1,5-2 mm broad, brown and sometimes with black notches, smooth.

Flowering time: I-VI. **Occurrence:** on all kinds of soil under mediterranean and semidesert conditions, mainly in the plains but up to 2050 m in Central Sahara.

Distribution: France, Portugal, Spain, Canary Islands, Morocco, Algeria, Tunisia, Libya, Egypt. Map 18.

Remarks:

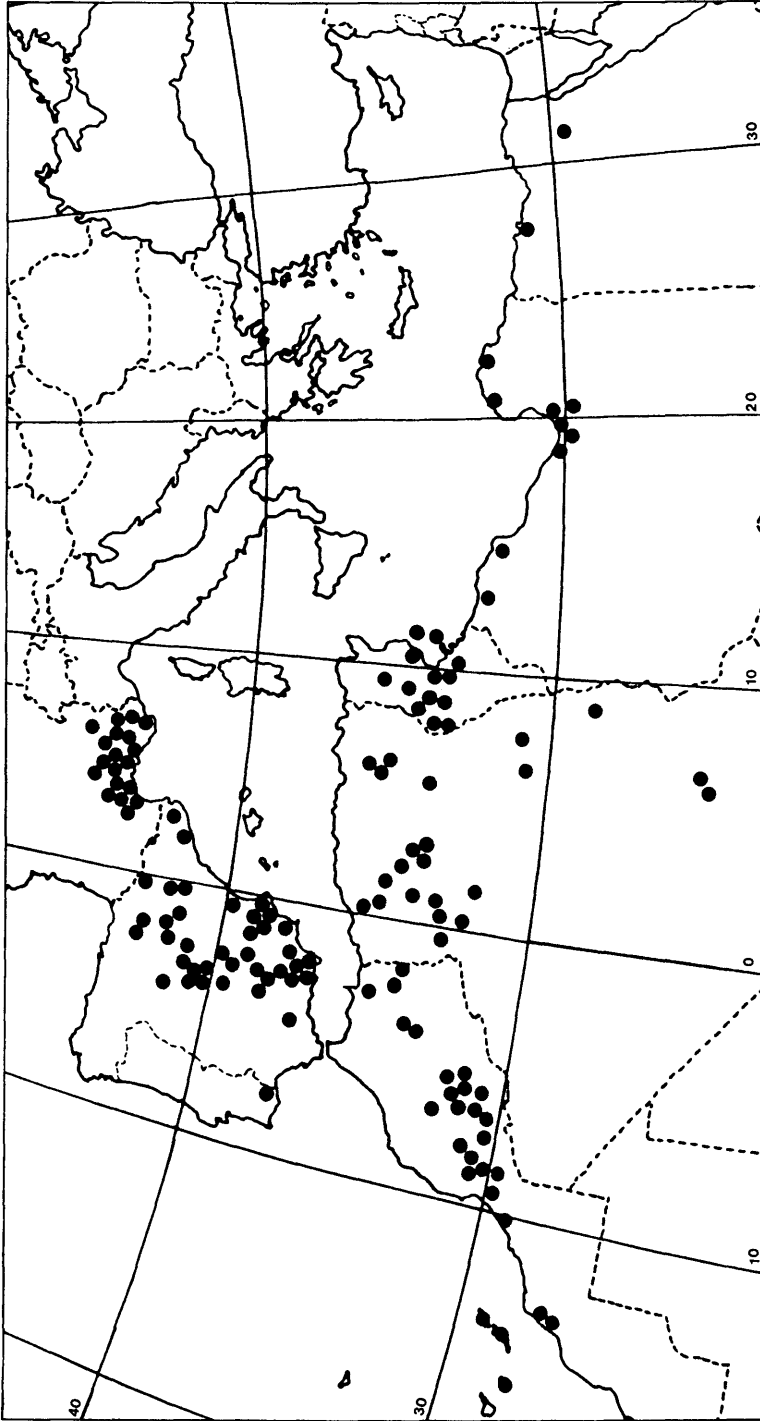
This species is rather variable in form, length and number of fruits within one inflorescence. In North Africa we can find often populations with relatively small legumes. These plants correspond with *A. arenicola* Pomel. As there are all intermediates to the plants with big pods, this species can not be uphold as a taxon of its own. Also the number of legumes within one head is not a good character. We can find plants with a high number (up to 10 or more) in all parts of the area. As treated in the introductory chapters all species of the sect. *Sesamei* are autogamous. Therefore we can find very often stable populations in respect of these variable characters.

Specimens seen:

France. Dep. Aude: Moux, 30.5.1898, *Delpont* (G) - Mailhac, V.1843, *Naudin* (G) - Moussan, 28.5.1903, *Sennen*(G). -- Dep. Hérault: sur la route impériale de Béziers à Carcassonne près de Nissan, V.1856, *Blanc* in Fl. Gall. et Germ. ed. BILLOT 2047 (BM, G, P) - Béziers, 1854, *Grenier* (W) - Montady près Béziers, 2.6.1873, *Aubouy* (B) - Béziers, V.1876, *Genevier* (G) - dto., V.1890, *Huguenin* 181 (W) - Agde, 21.5.1865, *Thevenau* (K) - Grabels à Valmanges, 15.5.1879, *Chenevière* (G) - Montpellier, *Delile* (G, W) - dto., 1837, *Grenier* (G) - dto., 2.6.1842, *Joad* (K) - dto., 3.6.1898, *Mandon* (G, W) - dto., Umgebung von Montellier, 14.6. 1957, *Patzke* (Hb. PODL.) - extinct volcano near Montpellier, 1.6.1856, *Wolfe* (K). -- Dep. Ardèche: Vogué, VI. 1891, *Girod* (G). -- Dep. Gard: Les Angles, 10.6.1876, *Delacour* (K) - dto., 1.6.1881, *Delacour* (G) - à Beaucaire, V.1886, *Neyra* in SCHULTZ, Herb. norm. 2323 (B, G, K, W). -- Dep. Vaucluse: Avignon, 3.6.1871, *Willmott* (K) - dto., 1876, *Thélephore* (W) - Le Pintet, IV.1863, *Mill* (K). -- Dep. Hautes-Alpes: Gap, 5.6.1900, *Girod* (G) - dto., 900 m, 12.6.1902, *Brachet* (G) - dto., à St. Jean, 900 m, 12.6.1902, *Faure* (G) - dto., 1903, *Girod* (B, MA) - Gap, à La Celle, VI.1903, *Girod* (B, M) - dto., 10.4.1904, *Girod* (MA) - entre St. Jean et La Celle, V.1900, *Girod* in Soc. l'étude flore Franco-Helvet. 1179 (G) - Mgne. de Crigne près Vitrolles, Gap, 23.6.1872, *Borel* (K) - dto., 1883, *Burle* (B, K, W). -- Dep. Basses-Alpes: prope Noizelles, 400 m, 15.5.1969, *Charpin & Greuter* 8348 (G). -- Dep. Bouches-du-Rhône: Miramas, 30.5.1876, *Autheman* (G) - Roquefavour, 17.6.1860, *Roux* (G) - Prénion près Aix en Provence, VI.1890, *Bruyas* (BM) - Martigues, 26.5.1861, ? (K) - St. Victoret, 23.5.1882, *Autheman* (B) - Pas-de-Lanciers, 20.6.1872, *Schmidely* (G) - dto., 3.6.1876, *Autheman* in Soc. dauph. 1591 (G, K, P, W) - Marseille, *Huguenin* (B). -- Dep. Var: Toulon, ? (B) - Draguignan, 1839, *Perreymond* (G, K) - dto., V.1910, *Girod* (G) - La Motte, V.1911, *Girod* (G).

Portugal. Algarve. Faro: pr. Castro Marim, 1848, *Welwitsch* 380 (BM, G).

Spain. León. Prov. Salamanca: Cabrerizos, 7.6.1979, *Rico* (MA). -- Castilla La Vieja. Prov. Burgos: Bujedo, VIII.1910, *Elias* (G) - dto., 14.7.1921, *Elias* in Sennen 4334 (MA). -- Prov. Valladolid: Fombedilla, 7.6.1977, *Diez* (MA) - Encinas de Esgueva, 15.5.1983, *Alonso* (MA) - Valladolid, 10.5.1865, *Reuter* (G) - dto., 20.6.1906, *Sennen* 57 (MA, W). -- Prov. Soria: Pantane de Monteagudo, 800 m, 28.5.1960, *Segura Zubizarreta* (MA) - Ambrona, 1100 m, 4.6.1977, *Segura Zubizarreta* (G). -- Vascongadas. Prov. Alava: Ribazas, 520 m, 30.5.1985, *Alejandre* (MA). -- Prov. Navarra: Ribazo, 340 m, 28.5.1985, *Alejandre* 1611.85 (MA). -- Aragón. Prov. Huesca: Aguinalin, Barranco de Agua Salada, 520 m, 2.6.1885, *Montserrat* (JACA) - Castiello de Jaca, 920 m, 29.6.1971, *Montserrat* (B, G, MA). -- Prov. Zaragoza: Calatayud, 1907-1910, *Vicioso* (B, G, MA, W) - Bujaraloz, 350 m, 18.5.1972,



Map 18. Distribution of *Astragalus stella*

Charpin (G). -- Prov. Teruel: Camarena, 1500 m, VI.1892, *Reverchon* 30 (G). -- Cataluna. Prov. Girona: Penedès, 12.5.1951, *Palau* (MA). -- Prov. Lerida: 2 km E Alfarras an der Straße (148) nach Balaguer, 330 m, 2.6.1988, *Podlech* 44290 (Hb. PODL.) - Balaguer, 250 m, 23.5.1926, *Font Quer* (MA). -- Prov. Barcelona: Barcelona, V.1873-1879, *Tremols* (G, W) - dto., V.1873, *Jover* (MA) - dto. Tibidabo, VI.1910, *Sennen* 974 (MA, W) & 975 (BM) - dto., 26.5.1915, *Sennen* in Soc. Franc., exs. DUFFOUR 1664 (BM, G, MA) - dto., 29.4.1920, *Sennen* (K). -- Castilla La Nueva. Prov. Guadalajara: Jadraque, 4.6.1970, *Bellot & al.* (MA). -- Prov. Madrid: El Pardo, VI.1930, *Merido* (MA) - Madrid, 1834, *Boissier* (G) - dto., 1839, *Rodriguez* (G) - dto., IV.1841, *Reuter* (G) - Madrid, Cerro Negro, 24.5.1824, *Rodriguez* (MA) - dto., V.1841, *Reuter* (BM, G) - dto., VI.1843, *Amo* (MA) - V.1916, *Vicioso* (B, MA) - 21.5.1924, *Font Quer* (MA) - Madrid, Ciudad Universitaria, 30.4.1953, *Carreira* (MA) - Vallecas, 25.4.1877, *Joad* (K) - dto., 21.4.1918, *Vicioso* (MA) - San Fernando de Henares, V.1920, *Cogolludo* (MA) - Loeches, 2.5.1928, *Wilmott* (BM) - dto., 30.4.1966, *Bellot & Monasterio* (MA) - Alcala de Henares, 23.4.1853, *Isern* (MA) - dto., 30.5.1854, *Bourgeau* 2126 (G, K) - Cerro de Angeles, 31.5.1925, *Lacaita* (BM) - Getafe, V.1914, *Vicio-so* (MA) - Ciempozuelos, 18.5.1897, *Pau* (MA) - Aranjuez, *Colmeiro* (MA) - dto., 8.5.1924, *Gros* 200 (MA) - dto., 11. 5.1924, *Font Quer* 278 (MA) - Villacanejos, 13.6.1975, *Segura Zubizarreta* (MA). -- Prov. Toledo: Algodor, V. 1925, *Caballero* (MA). -- Prov. Cuenca: Hito, 19.6.1975, *Santos Cirnjano* (MA). -- Prov. Ciudad-Réal: Ciudad-Réal, VI. 1879, *Laguna* (K) - El Lobillo, 25.6.1939, *Albo* (MA). -- Valencia. Prov. Castellón: La Lorna, Segorbe, 18.5. 1885, *Pau* (MA) - Sierra Segorbe à Montemalo, 500 m, VI. 1891, *Reverchon* 698 (BM, G, K, W) - Segorbe, 28.5.1918, *Pau* (MA). -- Prov. Alicante: Cabeso de Las Seduras, Villena, *Rigual* (MA) - Sierra Mariola, *Vilanova* (MA) - Monte Agudo near Novelda, 3.5.1959, *Rigual* (MA) - Puerto de La Carrasqueta, Jijona, 31.4.1962, *Rigual* (MA) - Peña de Jijona, 7.7.1959, *Rigual* (MA) - Sierra de Monalba, Agost, *Rigual* (MA) - Busot, 1.5.1963, *Rigual* (MA). -- Murcia. Prov. Albacete: prope La Grajuela, IV.1854, *Guirao* (G) - Alcaraz, 1936, *Albo* (MA) - dto., 19.6.1984, *Herranz* (MA) - dto., 700 m, 1975, *Poltaschek* (BM, G, W) - Tobarra, *Cavanilles* (MA). -- Prov. Murcia: Fortuna, VI.1933, *Ripley* 124 (K) - S. Feroni de la Murta, 15.5.1957, *Vidal* (JACA) - Cartagena, 6.4.1851, *Bourgeau* 1141 (G, K). -- Andalucia. Prov. Jaen: Larva, 500 m, 15.6.1971, *Fernández-Casas* (MA) - entre Hinojares y Ceal, 16.6.1971, *Fernández-Casas* (MA). -- Prov. Cadiz: Puerto de Santa María, 2.5.1973, *Hurtado* (MA). -- Granada. Prov. Malaga: Bobadilla, 8.4.1908, *Nicholson* (BM). -- Prov. Granada: Alicún de Ortega, 11.6.1971, *Fernández-Casas* (MA) - entre Gorafe y Baños de Alicún, 800 m, 10.6.1971, *Fernández-Casas* (M, MA) - above Guadix high road, 9.5.1926, *Ellmann & Sandwith* 571 (K) - Rambla à Guadix, 16.5.1929, *Gros* (MA) - 5 km E Ugijar on C 331 Alpujarra Alta, 12.4.1973, *Leadlay & al.* (BM). -- Prov. Almeria: Fifiñana, 4.5.1951, *Simpson* 51.511 (BM) - Tabernas - Rioja, 400 m, 30.5.1971, *Fernández-Casas* (MA) - Antas, 15.3.1970, *Fernández-Casas* (MA) - Cerro de San Christobal (in Almería), 130 m, 1.3. 1955, *Montserrat* (JACA).

Canary Islands. Gran Canaria: Baio del Confital, II. 1905, *Pitard* 144 (G). -- Fuerteventura: Casillas del Angel, 22.3.1976, *Kunkel* 18906 (G) - Tesjuates, 1.4.1976, *Kunkel* 19070 (G) - Puerto de Lajas, II.1905, *Pitard* (P) - near Airport, 30.3.1976, *Kunkel* 18968 (G) - Pozo Negro, 27.3.1981, *Lobin* (Hb. PODL.) - prope Gran Tarajal, 11.6. 1914, *Burchard* 348 (K, M, W) - prope portum Cabras, 19.2. 1846, *Bourgeau* 794 (BM, G, K, P) - dto., 22.2.1905, *Pitard* (P) -- dto., 5.4.1936, *Brooke* 338 (BM) - Oto Cobras, II. 1905, *Pitard* 1366 (P) - Puerto de Lajas, II. 1905, *Pitard* 141 (P). -- Lanzarote: Costa Rubicon bei Yaiza, II.1897, *Andreas* (M) - near Tías, 100 m, 25.4.1972, *Kunkel* 14928 (G) - Arrecife, Lowe (BM, K) - Tnubio, 10 m, 24.3.1978, *Cullett* 21673 (K).

Morocco. Prov. Nador: 5 km N Selouane, 4.5.1979, *Pasquier* 134 (G) - Moulouya (Kebdana), 14.6.1932, *Sennen & Mauricio* (BM). -- Prov. Fès: Hte. Moulaya, route Midelt - Missour, IV.1939, *L'Hermite* (P) - 15 km WSW Missour an der Straße nach Ksabi (S 329), 1000 m, 14.4.1987, *Podlech* 42386 (G, Hb. PODL.). -- Prov. Taza: 18 km NE Missour an der Straße nach Guercif (S 329), 14.4.1987, *Rechtsteiner* (G, LE, LG, MA, RSA, TARI, Hb. PODL.) - 21 km NE Missour an der Straße nach Guercif (S 329), 14.4.1987, *Podlech* 42335 (Hb. PODL.). -- Prov. Marrakech: Asni, 23.4.1936, *Simpson* 36.397 (BM). -- Prov. Agadir: 20 km WSW of Taroudant, Sous Valley, 2.5.1961, ? (BM) - High Atlas, 19 km S of Tizi-n-Test, 2000 m, 5.4.1974, *Miller & al.* 753 (MB) - S'Seite des Tizi-n-Test, 1000 m, 14.4.1967, *Merxmüller & Oberwinkler* 22439 (M) - zwischen Aouloud und Tazenakht, 1700 m, 14.4.1967, *Merxmüller & Oberwinkler* 22493 (M) - Montagne de Siggrat et Ghiliz jusque vers Ighirmillul à l'Est du distr. de Tazeroualt, 1876, *Mardochée* (P) - Djebel Tizelmi et montagnes du

Tazeroualt, 1876, *Mardochee* (G, P) - Anti-Atlas, 4 km SW Souk-el-Had-de-Tahala an der Straße von Tafraoute nach Tiznit, 22.4. 1987, *Podlech 42934* (Hb. PODL.) - Foumakili, district d'Ida Ouchemlal, 1876, *Mardochee* (P) - Anti-Atlas, 4 km NE Souk-Tnine-de-Tarsoute, *Podlech 45608* (Hb. PODL.) - Anti-Atlas, S side of Tizi-Mighert pass, above Bou-Iza-karne, 800-900 m, 24.3.1969, *Davis 48670* (BM) - 5 km E Bou-Izakarne an der Straße nach Akka (P 30), 600 m, 13.4. 1986, *Podlech 40687* (G, Hb. PODL.) - dto., *Podlech 40695* (G, MA, TARI, Hb. PODL.) - Anti-Atlas, 5 km W Igherm an der Piste nach Tafraoute (7038), 1720 m, 28.4.1989, *Pod-lech 45456* (Hb. PODL.) - Anti-Atlas, Iramidene, 33 km SE Taroudant an der Straße nach Irherm (7027), 570 m, 16.4. 1986, *Podlech 40859* (Hb. PODL.) - Djebel Tizelmi et montagnes du Tazeroualt, 1876, *Mardochee* (K) - 3 km N Souk Khemissé an der Straße von Tata nach Irherm, 1110 m, 28. 4.1989, *Podlech 45384* (Hb. PODL.). -- Prov. Layoune: Umgebung von Daouerah, ca. 50 km NNE Layoune an der Straße nach Tarfaya, 30 m, 11.4.1986, *Podlech 40512* (Hb. PODL.) - 2 km N Layoune, 11.4.1986, *Podlech 40496* (Hb. PODL.). -- Prov. Ouarzazate: Anti-Atlas, 2 km E Taliouine, 1130 m, 16.4.1986, *Podlech 40944, 40962* (Hb. PODL.) -- Massif du Siroua, IV.1935, *Peltier* (P) - Ouarzazate, 26.3.1980, *Lewalle 9283* (BM) - Paßhöhe Tizi-n-Tinfift, ca. 20 km W Agdz an der Straße nach Ouarzazate, 1650 m, 11.4.1990, *Podlech 49517* (Hb. PODL.) - prope Msemrir, 2010 m, 1.6. 1985, *Blanche & al. 10* (MA) - Imiter, 21 km E Boulmane du Dadès an der Straße nach Tinerhir, 1380 m, 17.4.1987, *Rechtsteiner* (Hb. PODL.) - dto., *Podlech 42658a* (G, Hb. PODL.) - 12 km E Tinerhir an der Straße nach Goulmina (P 32), 1250 m, 17.4.1987, *Podlech 42618* (Hb. PODL.) - dto., *Lippert 22173a* (M) - 22 km W Tinejdad an der Straße von Goulmina nach Tinerhir (P 32), 1100 m, 16.4.1987, *Podlech 42605* (Hb. PODL.). -- Prov. Er-Rachidia: 12 km E Tinejdad an der Straße nach Erfoud (3451), 980 m, 16.4.1987, *Rechtsteiner* (Hb. PODL.)

Algeria. Wil. Oran: Oran, *Munby* (G) - Bedeau, 1100 m, 25.5.1921, *d'Alleizette* (MA). -- Wil. Saïda: près de Timetlas, 25.5.1852, *Balansa 446* (G, K, P, W) - Ben Zireg, 14.5.1906, *Romieux 632* (G) - Ain Sefra, *Battandier* (G). -- Wil. Bechar: 33 km E Ain Sefra an der Straße nach El Bayadh, 1150 m, 5.4. 1980, *Podlech 33921* (G, M, Hb. PODL.) - 21 km ENE Chellalah Dahrana (100 km ENE Ain Sefra) an der Straße nach El Bayadh, 1240 m, 5.4. 1980, *Podlech 33967* (G, HUI, M, Hb. PODL.). -- Wil. Djelfa: 38 km NW Laghouat an der Straße nach Aflou, 930 m, 6.4.1980, *Podlech 34049* (M, Hb. PODL.). -- Wil. Laghouat: between Laghouat and Tagmut, 930 m, 9.4.1937, *Alston & Simpson 37.077* (BM) - Sidi-Makhlouf près Laghouat, V. 1854, *Reboud* (P) - Dahia de Guerrera-el-Hamra, Laghouat, 3.5. 1854, *Reboud 130* (P). -- Wil. Batna: Aurès Gebirge, N Tighanimine, Flußbett des Oued Abiod, 14.4.1982, *Podlech 37245* (Hb. PODL.) - El Abiod to Sidi Cheikh, 4.5.1899, *Chevallier 291 p.p.* (G) - Banian, Oued Abiod, IV. 1936, *Gougerot-Nicot* (P) - dto., 15.4.1937, *Simpson 37.253* (BM). -- Wil. Biskra: Biskra, IV.18888, *Girod* (G) - dto., 1938, *Trethewy 130, 133* (K) - Mnechounès près Biskra, 18.5.1853, *Balansa* (P). -- Wil. Ouargla: Plateau du Tinrhert, 70 km N in Amenas an der Straße nach Hassi Bel Guebbour, 670 m, 12.3.1980, *Podlech 32941* (G, HUI, M, Hb. PODL.). -- Wil. Tamanrasset: Hoggar Massiv, Guelta Afilale, nahe der Straße von Tamanrasset zum Assekrem, 2000-2050 m, 24.3.1980, *Podlech 33339* (CAI, G, HUI, LG, Hb. PODL.) - dto., 20.3.1981, *Podlech 34909* (G, M, Hb. PODL.) - Hoggar Massif, Guelta Issakarassene an der Piste von Hirafok zum Assekrem, 1930 m, 20.3.1981, *Podlech 35001* (M, Hb. PODL.).

Tunisia. Prov. Sfax: Sfax, 1856, *Ducouret* (P) - dto., 5.4.1884, *Doumet-Adanson & Bonnet* (P) - route de Sfax à Gabès, 7.4.1909, *Hibon* (P). -- Prov. Kairouan: Haffouz, 19.1.1971, *Röthlisberger* (G). -- Prov. Kasserine: Feriana, 25.5.1884, *Robert* (P). -- Prov. Tozeur: Hazoua, Grenzstation nach Algerien, 40 m, 10.3.1980, *Podlech 32852* (G, Hb. PODL.) - Tozeur, IV.1908, *Pitard 361* (G). -- Prov. Gafsa: 18 km NNE Bir El Afey (88 km NNE Gafsa) an der Straße nach Kairouan, 410 m, 10.4.1980, *Podlech 34271* (Hb. PODL.) - 10 km NNE Metlaoui, 17.4.1968, *Wagenitz 1350* (B) - Gafsa, *Robert* (P) - dto., IV.1909, *Pitard 1804* (B, BM, G, W) - dto., IV.1910, *Pitard 1393, 1805* (G) - dto., 4.4.1938, *Simpson 38.132* (BM) - El Guettar, IV.1909, *Romieux 631* (G) - dto., V.1909, *Pitard 2788* (G). -- Prov. Gabès: El Hamma de Gabès, 1913, *Pitard 2826, 2827* (G) - Gabès, 13.3.1854, *Kralik 168* (P) - dto., II. 1913, *Pitard 2828* (G) - dto., 30.3.1938, *Simpson 38.051* (BM) - Gabès, Metrech, III.1907, *Pitard 85* (G, P) - Sidi-Boul-Baba prope Gabès, 3.4.1854, *Kralik* (G, P) - 9 km S Gabès, 3.3.1968, *Leippert 7021* (B) - Kebira (Matmata), III.1910, *Pitard 2287* (G). -- Prov. Medenine: Ile de Djerba, coté SE de l'île, 10.3.1968, *Gauthier 11755* (G) - 6 km W Médinine, 18.3.1971, *Röthlisberger* (G) - Medinine, II.1907, *Pitard 85bis* (K) - Bir el Ahmar (S Medinine), 4.4.1884, *Letiurneux* (P).

Libya. Tripolitania: near Pisida, towards Zuwarah, 25.3.1939, *Sandwith 2848* (K) - Azizia plain,

23.1.1949, *Johnson 110* (BM) - near Al Kararim, 8.3.1968, *Boulos 1901* (G) - 56 km S Jaurga, 22.4.1939, *Simpson 39.665* (BM). -- Cyrenaica: 36 km S of Agheila to Marada, 5.3.1958, *Gui-chard 54/58* (BM) - 26 km E Mersa Brega, SW Agedabia, 17. 4.1939, *Sandwith 2672* (BM, K) - 13 miles S Agedabia on Gâlo track, 30.3.1939, *Simpson 39.116* (BM) - between Agedabia and the wadi Zareghi, 30.3.1939, *Sandwith 2157* (K) - above Barce, ca. 500 m, 14.4.1939, *Sandwith 2645* (K) - Tarzaniat, 10 km SE Bescer, 9.3.1958, *Guichard 80/58* (BM) - Derna, 6.4.1887, *Taubert 183* (P) .

Egypt: Wadi Hof, III.1978, *Merxmüller* (M).