

CHROMOSOME COUNTS OF AND NOTES
ON SOME OLD WORLD ASTERS (ASTERACEAE)

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In order to familiarize ourselves with the characteristics of Old World species of Aster, we acquired achenes offered in the seed lists of some botanical gardens. A portion of the material was used to obtain the chromosome counts reported below.

MATERIALS AND METHODS

With the exception of one population of Aster tripolium, all materials used in the investigation came from plants cultivated in botanical gardens. For germination, the achenes were placed on wet filter paper in Petri dishes. Some of the young seedlings were fixed and stained using standard cytological techniques. The remaining plants were potted and grown to maturity to provide vouchers for verification of identity. For meiotic chromosome counts, buds were fixed and anthers stained, again using standard techniques. Vouchers are on deposit at ILL.

RESULTS AND COMMENTS

Aster alpinus L.-- $2n = 18$. Both meiotic and mitotic counts were obtained. Buds were collected from plants in the Botanical Garden of the University of Tübingen (AGJ 5877); achenes came from the Conservatoire et Jardin Botanique in Geneva (AGJ 6315). This species is notable for a very early flowering period (May-June).

Aster amellus L.-- $2n = 18$. Seed source: Cons. & Jard. Bot. Geneva (AGJ 6313). The plants grown in the greenhouse are rather short-stemmed, but they clearly belong in this variable species.

Aster ibericus Stev. in M.-Bieb.-- $2n = 54$. Seed source: Moscow Botanical Garden (AGJ 6331). The plants belong in or near A. amellus. Nees von Esenbeck placed the name in synonymy under that species (1832: 45), and the taxon was formally given varietal rank under A. amellus by De Candolle (1836, 5: 231). In Komarov's Flora URSS (25: 87. 1959), Tamamschjan recognized A. ibericus at species rank. Her species concept generally is very narrow but, in this case, the hexaploid chromosome number (which has been reported before by Huziwara, 1962) perhaps would support treatment as a species distinct from A. amellus. However, hexaploid chromosome counts for A. amellus have also been reported (cf. Moore 1973). The plants

compare well with the original diagnosis and statements in the works cited, and they match a drawing presented by Tamamschjan (1959: 89). The senior author recalls having seen similar specimens in European herbaria.

Aster pyrenaicus Desf. ex DC. in Lam. & DC.-- $2n = 18$. Seed source: Munich Botanical Garden (AGJ 6332). The plants at hand correspond well to type material and herbarium specimens of this species.

Aster serpentimontanus Tamamsch.-- $2n = 18$. Seed source: Moscow Botanical Garden (AGJ 5895). The plant seems to present no more than a variant of A. alpinus with somewhat coarser leaves and exceptionally large heads. Flowering period also coincides with that noted for A. alpinus. The type is that of A. cylleneus Onno (1932) non Halaczy (1901), i.e. this is a renaming of a later homonym. Our material corresponds well to the type and named specimens in European herbaria.

Aster tongolensis Franch.-- $2n = 54$ (this apparently is a first report). Seed source: Cons. & Jard. Bot. Geneva (AGJ 6316). The species was originally described from China. We have seen no authentic specimens, but our plants match the original description and the photograph of a syntype (Ta-tsien-lou, Pratt 700); they also can readily be identified in Onno's (1932) key, and they are classified in that presentation under Aster sect. Alpigeni Nees subsect. Homochaeta Onno series Brachychaeti Onno, i.e. plants having achenes with relatively few, very short, pappus bristles. In our opinion, these plants do not belong in Aster, but rather in Kalimeris. They are characterized by achenes that are very broad and flat, with two marginal ribs that create almost the impression of a winged margin. The pappus forms a narrow crown of a few, rufous, attenuate bristles, ca 0.5-1.5 mm long, to about one-third the length of the disk corollas. Superficially the habit and rosette leaves resemble those of A. alpinus. However, members of Aster sect. Alpigeni can readily be distinguished by their whitish pappus of numerous, slender, soft bristles that are about as long as the disk corollas. Ligules in plants of A. alpinus and A. serpentimontanus are of a deep blue. Plants of A. tongolensis have much coarser foliage and longer peduncles. Ligules are pale, almost white, or even cream-colored in the early stages before anthesis.

Aster tripolium L.-- $2n = 18$. Both meiotic and mitotic counts were recorded. Achenes were obtained from the Munich Botanical Garden (AGJ 6333), and from a collection made by J. Cheeseman (University of Illinois) in Scotland, Kincardine Bridge, Grangemouth (AGJ 5885). The vouchers compare well with herbarium material. Flowering in these plants could be induced only by placing them under a lamp with very intensive light.

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XYRIDACEAE VENEZUELANAE -- I

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In preparation for the publication of the Xyridaceae in "Flora de Venezuela" we are publishing the following five new species. A sixth species is *Xyris apureana* Kral & Smith, Ann. Mo. Bot. Gard. 69: 412, fig. 1. 1982.

We are relating the species to those in Maguire & L. B. Smith, "The Botany of the Guayana Highland", Memoirs of the New York Botanical Garden 10(5): 8-37. 1964, although the Guayana Highland and Venezuela each have species not found in the other area. In some cases we have proposed finely distinguished species in order not to lose them by possible misidentification with an old species.

XYRIS Section NEMATOPUS

28a. X. CHIMANTAE Kral & Smith, sp. nov. Planta perennis caespitosa, basibus firmis lamprocupreis vel lamprocastaneis, per bases persistentes veteras foliorum obtectis. Radices graciles, pro maxima parte a infernis nodis exorientes. Caules elongati, basibus in substrato profunde dispositis. Folia principalia rigida, disticha, leviter flabellate expansa, (1.8-)2-4(4.8) dm longa, vaginis scaporum longiora; laminae 3-4-plo vaginis longiores, leviter tortae, planae, sed leviter incrassatae et crassimarginatae, 2.0-2.5 mm latae, olivaceae vel glandaceae, subtiliter papilloso-rugulosae; apices abrupte incurvato-acuti, incrassati, integri vel scabro-ciliati; margines leviter papilloso vel minute scabrido-ciliati; vaginae ecarinatae, multicostatae, papilloso-rugulosae, apice breviligulatae, infime gradatim dilatatae, aciebus integris, firmis. Vaginae scaporum apertae, laxae, multicostatae, brevilaminatae. Scapi graciles, ca. 3-6 dm longi, recti vel leviter torti et flexuosi, in sectione transversali distaliter subteretes vel ovaes vel elliptici, papillosi, ecostati vel anguste bicostati, costis papillosis vel scabridis. Spicae multiflorae, obovoideae vel obconicae, ca. 1 cm longae; bracteae laxae imbricatae, subdecussatae, ecarinatae sine area dorsali, glabrae, pallide vel profunde brunneolae sed haud marginatae, valde laceratae; bracteae steriles ovatae, plures, fertilibus breviores, in fertiles gradatim transientes; bracteae fertiles plures, ovatae, 7 mm longae, anguste rotundatae ad apicem rufociliatae, nervis medianis humilibus sed manifestis. Sepala lateralia libera, subequilatera, oblanceolata, ca. 5.5 mm longa, inclusa vel ad apicem spicae exserta, leviter curvata, acuta; ala carinali a medio ad apicem rufofimbriolata. Laminae petalorum obovato-rhomboidae, luteolae, ca. 6 mm longae, apice anguste rotundatae, erosae. Stami-



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