

CHROMOSOME NUMBERS OF FLOWERING PLANTS IN THE NETHERLANDS. III¹⁾

BY

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INTRODUCTION

In the present paper, the third in this series, the chromosome numbers of 46 species of *Angiospermae* occurring in the Netherlands, are listed. A comparison of our results with data derived from literature revealed the fact that these species show cytological differentiation in their distribution area.

MATERIAL AND METHODS

Most of the chromosome number determinations were made on greenhouse plants, grown from seeds collected in the wild. Some fixations were made directly in the field. Methods used were the same as described in our previous papers. Voucher specimens as well as the microscopical preparations have been deposited in the Utrecht Museum and Herbarium.

RESULTS

The species studied are listed in the table. The order of listing is alphabetical according to the families and within them according to the genera. (see table, p. 10).

NOTES ON SOME SPECIES

Chaerophyllum temulum L.

Seeds of this species, collected in nature (on the slope of the Grebbeberg, prov. of Utrecht), derived from different plants, were germinated. The seedlings are characterized by two different chromosome numbers: $2n = 14$ and $2n = 22$. The first confirmed the report of BÖCHER and LARSEN (1955), the latter that of WULFF (1939). Since many species in the genus *Chaerophyllum* have the number $2n = 22$, this number seems to be the more common.

¹⁾ Continued from: *Acta Botanica Neerlandica* 12: 195-230 (1963), and *Proc. Roy. Neth. Acad. Sci. ser. C.* 69: (1966), in press.

Eriophorum latifolium Hoppe

The chromosome number of this species, collected in a bog near Nieuw-Milligen (prov. of Gelderland), turned out to be $2n=58$. *Eriophorum latifolium* was studied before by SÖRENSEN and WESTERGAARD (in LÖVE and LÖVE, 1948) and by SCHEERER (1940), who counted $2n=72$ in plants from Denmark and from Sleswick-Holstein, respectively.

Lysimachia nummularia L.

The numbers $2n=32$ and $2n=43$ were reported by GADELLA and KLIPHUIS (1963), in plants collected in the Netherlands. FINCH (in litt.), investigated Dutch material from Rhijnauwen and from Fort Hoofddijk (both prov. of Utrecht) and gives the number $2n=45$. In 1965 some plants from the Grebbeberg (prov. of Utrecht) and from the Quackjeswater near Rockanje (prov. of Zuid-Holland) were studied. Their chromosome number also proved to be $2n=45$.

Mercurialis perennis L.

In the Netherlands this species is almost exclusively restricted to the south of the province of Limbourg. Here, GADELLA and KLIPHUIS (1963), found the numbers $2n=64$ and $2n=66$. In the province of Utrecht, in a wood along the river the Kromme Rijn, a very small population, consisting of female plants only, occurs. Investigated plants from this population have the chromosome number $2n=84$. BAKSAY (1957) counted in plants from Hungary: $2n=42$. It seems appropriate to study the species *Mercurialis perennis* more in detail.

Myosotis scorpioides L.

All investigated plants showed the chromosome number $2n=64$ repeatedly in somatic metaphase plates of roottips. This confirms the results of STREY (1931), Germany; POLYA (1950), Hungary; LÖVE and LÖVE (1956), Iceland. The basic number of the palustris-group is $x=11$. The investigated plants from the Netherlands, therefore, proved to be hypohexaploid. Aberrations in chromosome number on a polyploid level may also be observed in other species, e.g. *Viola lactea* Sm. (MOORE and HARVEY, 1961) and *Galium aparine* L. (KLIPHUIS, 1962, 1966). It does not seem to be of any particular taxonomic value. Hexaploid plants ($2n=66$) are reported by MERXMÜLLER and GRAU (1963), originating from Saxony, Upper-Bavaria and Austria.

Sedum acre L.

In *Sedum acre* various chromosome numbers occur: $2n=16$ (TOYOHUKU, 1935: Britain); $2n=48$ (WULFF, 1937: Schleswick-Holstein; LÖVE and LÖVE, 1944: Sweden; LÖVE and LÖVE, 1956: Iceland; SORSA, 1962: Finland); $2n=40$ (UHL, in LÖVE and LÖVE, 1961: Morocco); $2n=80$ (UHL, l.c.: U.S.A.). In the Netherlands plants from three populations

were studied. Only the number $2n=40$ could be corroborated. Further investigations concerning this species are planned.

Stellaria graminea L.

In this species PETERSON (1936), ROHWEDER (1939), and BLACKBURN and MORTON (1957) found $2n=26$. In the Netherlands one single population near Utrecht proved to be triploid ($2n=39$). Studies on this population and on others, consisting of plants with $2n=52$ (Miss I. Groet, unpublished), will be the objective of further investigation.

Symphytum officinale L.

In a previous paper three different chromosome numbers ($2n=26$, 40 and 48) were reported (GADELLA and KLIPHUIS, 1963). The plants with $2n=26$ were collected near IJsselstein (prov. of Utrecht). During 1964 and 1965, many plants were sampled in this locality. Cytological studies revealed the number $2n=24$ in most plants, whereas in others the occurrence of B-chromosomes could be demonstrated: $2n=24+1-4B$.

The investigated plants with $2n=24$ are always white-flowering. Further research on this population as well as on populations with the numbers $2n=40$ and $2n=48$ are in progress.

Valerianella locusta (L.) Betsche

ELVERS (1932) published the chromosome number $2n=14$. In the investigated Dutch plants it was very difficult to establish the exact number. In two plants, both originating from the Grebbeberg (prov. of Utrecht) 26 and 27 metaphase plates were counted respectively. The following results were obtained: Plant I (coll. no.: G. et K. 1792): $2n=15$ (1 ×), $2n=16$ (1 ×), $2n=17$ (19 ×), $2n=18$ (5 ×); Plant II (coll. no. G. et K. 1790): $2n=15$ (1 ×), $2n=16$ (6 ×), $2n=17$ (14 ×), and $2n=18$ (6 ×).

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TABLE 1

The number of chromosomes of the species studied cytologically, with reference to the collection number, source of the material and to the results of previous investigations

Boraginaceae

Myosotis arvensis (L.) Hill

coll. no.: G. et K. 2097 2n=52

origin: On the slope of the Grebbeberg, Rhenen (prov. of Utrecht)

Ref.: MATTICK, in TISCHLER, (1950): 2n=24; STREY, (1931): 2n=48; MERXMÜLLER and GRAU, (1963): 2n=52; GEITLER, (1936), LÖVE and LÖVE, (1956): 2n=54.

Myosotis scorpioides L.

coll. no.: G. et K. 1399 2n=63, 64

origin: In a small marsh near the Grebbeberg (prov. of Utrecht)

coll. no.: G. et K. 1497 2n=64

origin: Along a ditch near Utrecht

coll. no.: G. et K. 1555 2n=64

origin: Along a ditch near Jutphaas (prov. of Utrecht)

coll. no.: G. et K. 1942, 1946 2n=64

origin: Along the bank of Quackjeswater, Rockanje (prov. of Zuid-Holland)

coll. no.: G. et K. 2277 2n=64

origin: Fen near Sleen (prov. of Drente)

Ref.: STREY, (1931), GEITLER, (1936): 2n=±64; POLYA, (1950), LÖVE and LÖVE, (1956): 2n=64; MERXMÜLLER and GRAU, (1963): 2n=66.

Myosotis sylvatica Ehrh. ex Hoffm.

coll. no.: G. et K. 2621, 2622, 2623, 2624 2n=18

origin: Schweibergerbos, Mechelen (prov. of Limburg)

Ref.: GRAU, (1964): ssp. *sylvatica* 2n=18, (20); ssp. *subarvensis* GRAU 2n=18; ssp. *cyanea* BOISS. et HELDR. 2n=18, (20); ssp. *elongata* (Stroll) GRAU 2n=22.

Symphytum officinale L.

coll. no.: G. et K. 1681 2n=48

origin: Fort Hoofddijk, De Bilt (prov. of Utrecht)

Ref.: STREY, (1931): 2n=±36; SUZUKA, (1950): 2n=36; LÖVE and LÖVE, (1956): 2n=±40; DATTA, (1933): 2n=42; TARNAVSCHI, (1948): 2n=48; GADELLA and KLIPHUIS, (1963): 2n=26, 40, 48.

Caryophyllaceae

Cerastium atrovirens Bab.

coll. no.: G. et K. 1116, 1123, 1124 2n=72

origin: Isle of De Beer (prov. of Zuid-Holland)

coll. no.: G. et K. 1117, 1118 2n=72
 origin: West point of the Isle of Voorne (prov. of Zuid-Holland)

Ref.: WULFF, (1937), ROHWEDER, (1939): 2n=36; BRETT, (1955), BLACKBURN and MORTON, (1957): 2n=72.

Sagina maritima G. Don

coll. no.: G. et K. 3046 2n=28
 origin: Strandhaak, Oost-Voorne (prov. of Zuid-Holland)

coll. no.: G. et K. 3047 2n=28
 origin: Isle of De Beer (prov. of Zuid-Holland)

Ref.: WULFF, (1937): 2n=22-40; BLACKBURN and MORTON (1957): 2n=28.

Sagina nodosa (L.) Fenzl

coll. no.: G. et K. 2521 2n=56
 origin: National Park „De Boschplaat”, Isle of Terschelling

coll. no.: G. et K. 2774, 2777, 2778, 2779, 2780, 2784, 2786, 2788, 2790, 2798 and 2800 2n=56
 origin: Dunes of Oost-Voorne (prov. of Zuid-Holland)

coll. no.: G. et K. 2792, 2794, 2802 2n=56
 origin: Strandhaak, Oost-Voorne (prov. of Zuid-Holland)

Ref.: WULFF, (1937): 2n=20-24; LÖVE and LÖVE, (1956): 2n=44; BLACKBURN and MORTON, (1957): 2n=56.

Stellaria graminea L.

coll. no.: G. et K. 1634 2n=39
 origin: Along a ditch near Bunnik (prov. of Utrecht)

Ref.: PETERSON, (1936), ROHWEDER, (1939), BLACKBURN and MORTON, (1957): 2n=26.

Stellaria media (L.) Vill.

coll. no.: G. et K. 1643 2n=40
 origin: Along a road near Utrecht (prov. of Utrecht)

coll. no.: G. et K. 1751 2n=42
 origin: Near Vinkeveen (prov. of Utrecht)

Ref.: NEGODI, (1935, 1936), MULLIGAN, (1961), BLACKBURN and MORTON, (1957): 2n=40; PETERSON, (1936), LÖVE and LÖVE, (1956): 2n=42; PETERSON, (1936), BLACKBURN and MORTON, (1957): 2n=44.

Compositae

Carduus crispus L.

coll. no.: G. et K. 1364, 1365 2n=16
 origin: Grebbeberg near Rhenen (prov. of Utrecht)

Ref.: TISCHLER, (1927, 1931): 2n=16; GORECKA, (1956): 2n=16+0-4B; ARONO, (1957): 2n=21.

Galinsoga parviflora Cav.

coll. no.: G. et K. 1422 2n = 16
 origin: South of Hilversum (prov. of Noord-Holland)

Ref.: COVAS and SCHNACK, (1946), POLYA, (1950), HASKELL and MARKS, (1952), HASKELL, (1954), JAWORSKA in SKALINSKA et al., (1964), KOUL, (1964): 2n=16; TURNER and KOUL, (1964): 2n=32.

Hieracium umbellatum L.

coll. no.: G. et K. 2451 2n = 18
 origin: National Park „De Boschplaat”, Isle of Terschelling

Ref.: JUEL, (1905), ROSENBERG, (1927), CHRISTOFF and POPOFF, (1933), BERGMAN, (1934), TURESSON, (1938), GENTCHEFF, (1941), POLYA, (1950), WULFF, (1950): 2n = 18; ROSENBERG, (1917, 1927), BERGMAN, (1934, 1941), SOKOLOVSKAJA, (1963): 2n=27.

Pulicaria dysenterica (L.) Bernh.

coll. no.: G. et K. 1462 2n = 20
 origin: Between Houten and Schalkwijk (prov. of Utrecht)

coll. no.: G. et K. 1464 2n = 18
 origin: Near Houten (prov. of Utrecht)

coll. no.: G. et K. 1608 2n = 18
 origin: Kwade Hoek, Isle of Goeree (prov. of Zuid-Holland)

Ref.: RODOLICO, (1933): 2n=20.

Sonchus arvensis L.

coll. no.: G. et K. 1446, 3025 2n = 54
 origin: Between De Bilt and Bunnik (prov. of Utrecht)

coll. no.: G. et K. 1611 2n = 54
 origin: Near Oost-Voorne (prov. of Zuid-Holland)

Ref.: SORSA, (1962, 1963): 2n=18; MULLIGAN, (1957): 2n=36; SHUMOVICH and MONTGOMERY, (1955), LÖVE and LÖVE, (1956), MULLIGAN, (1957), LÖVKVIST, in ERICSON, (1958): 2n=54.

Crassulaceae

Sedum acre L.

coll. no.: G. et K. 1707 2n = 40
 origin: Hondsbossche Zeewering, Camperduin (prov. of Noord-Holland)

coll. no.: G. et K. 1991 2n = 60
 origin: Strandhaak, Oost-Voorne (prov. of Zuid-Holland)

Ref.: TOYOHUKU, (1935): 2n=16; LÖVE and LÖVE, (1944, 1956), SORSA, (1962), WULFF, (1937): 2n=48; UHL, in LÖVE and LÖVE, (1961): 2n=40, 80.

Sedum sexangulare L.

coll. no.: G. et K. 1756 2n=108

origin: On the slope of the Grebbeberg, Rhenen (prov. of Utrecht)

Ref.: UHL, in LÖVE and LÖVE, (1961): 2n=74.

Convolvulaceae*Calystegia sepium* (L.) R.Br.

coll. no.: G. et K. 1355 2n=22

origin: Along the river the Rhine, near Rhenen (prov. of Utrecht)

Ref.: KANO, (1929): 2n=22; PERSEY, (1935, 1936), WOLCOTT, (1937), FELFÖLDY, (1947): 2n=24.

Cruciferae*Capsella bursa-pastoris* (L.) Med.

coll. no.: G. et K. 1369 2n=32

origin: Along the slope of the Grebbeberg (prov. of Utrecht)

coll. no.: G. et K. 1652 2n=32

origin: Between Utrecht and Bunnik (prov. of Utrecht)

Ref.: ROSENBERG, (1904), LAIBACH, (1907), MARCHÁL, (1920), HILL, (1927), SHULL, (1937), VAARAMA, (1943), MATTICK, in TISCHLER, (1950), NEGODI, (1950), LÖVE and LÖVE, (1956), MULLIGAN, (1957), BÖCHER and LARSEN, (1958): 2n=32; EASTERLY, (1963): 2n=16, 32.

Rorippa sylvestris (L.) Besser

coll. no.: G. et K. 1453 2n=48

origin: Roadside between Utrecht and Bunnik (prov. of Utrecht)

Ref.: HOWARD, (1946, 1947, 1953), LÖVE and LÖVE, (1956): 2n=48; JONSELL, (1964): 2n=32, 40, 48.

Cyperaceae*Eriophorum latifolium* Hoppe

coll. no.: G. et K. 1299 2n=58

origin: Between Ermelo and Nieuw-Milligen (prov. of Gelderland)

Ref.: SCHEERER, (1940): 2n=± 54; SÖRENSEN and WESTERGAARD, in LÖVE and LÖVE, (1948): 2n=72.

Euphorbiaceae*Mercurialis perennis* L.

coll. no.: G. et K. 1516 2n=84

origin: Along the river Kromme Rijn, near Rhijnauwen (prov. of Utrecht)

Ref.: BAKSAY, (1957): 2n=42; GADELLA and KLIPHUIS, (1963): 2n=64, 66.

Geraniaceae

Geranium robertianum L.

coll. no.: G. et K. 1434 2n=64

origin: Fort Hoofddijk, De Bilt (prov. of Utrecht)

coll. no.: G. et K. 1682 2n=64

origin: Near Rhijnauwen (prov. of Utrecht)

Ref.: SORSA, (1962, 1963): 2n=32; BÖCHER, (1947), BAKER, (1949), POLYA, (1950), BÖCHER and LARSEN, (1955), LÖVE and LÖVE, (1956): 2n=64.

Gramineae

Bromus sterilis L.

coll. no.: G. et K. 1405 2n=14

origin: Along the river the Rhine, Rhenen (prov. of Utrecht)

Ref.: STÄHLIN, (1929), CUGNAC and SIMONET, (1941), DELAY, (1947): 2n=14; TATEOKA, (1955, 1959), SCHULZ-SCHAEFFER, (1956): 2n=28.

Calamagrostis epigejos (L.) Roth

coll. no.: G. et K. 1592 2n=28

origin: Dunes near Oost-Voorne (prov. of Zuid-Holland)

Ref.: NIELSEN, (1939), WESTERGAARD, (1941, 1943), LITARDIÈRE, (1949), NYGREN, (1953), TATEOKA, (1959): 2n=28; NYGREN, (1946): 2n=28, 35, 42, 49, 56; KUBIEN, (1964): 2n=28, 56; LINDER and BRUN, (1956): 2n=35; NYGREN, (1948): 2n=42; WESTERGAARD, (1941, 1943), NYGREN, (1948), POLYA, (1949), SZWABOWICZ, in SKALINSKA et al., (1957): 2n=56; AVDULOV, (1931): 2n=±70.

Holcus mollis L.

coll. no.: G. et K. 1423 2n=28

origin: Near Klein-Waschmeer, south of Hilversum (prov. of Noord-Holland)

Ref.: BEDDOWS and JONES, (1953), JONES, (1954, 1958, 1959, 1960): 2n=21, 35, 42, 49; LÖVE and LÖVE, (1942, 1944), LITARDIÈRE, (1949), JONES, (1954, 1958, 1959, 1960), CAROLL and JONES, (1962): 2n=28.

Koeleria pyramidata (Lamk.) P.B.

coll. no.: G. et K. 2610 2n=28

origin: Bemelerberg, on a dry slope (Mesobrometum) (prov. of Limburg)

Ref.: MAUDE, (1939, 1940), STEBBINS and LÖVE, (1941), DE WET, (1960): 2n=28; BÖCHER, (1943): 2n=42; AVDULOV, (1931): 2n=70.

Nardus stricta L.

coll. no.: G. et K. 2393 2n=26

origin: Bemelerberg, near Bemelen (prov. of Limburg)

Ref.: SOKOLOVSKAJA and STRELKOVA, (1948): 2n=24-25; AVDULOV, (1928, 1931), RYCHLEWSKI, in SKALINSKA et al., (1957, 1959), QUÉZEL, (1957), CHADWICK, (1960), HEDBERG and HEDBERG, (1961): 2n=26; LÖVE and LÖVE, (1956): 2n=26-30; BOWDEN, (1960): 2n=30.

Labiatae

Scutellaria galericulata L.

coll. no.: G. et K. 1559 2n=32

origin: Near IJsselstein (prov. of Utrecht)

coll. no.: G. et K. 1461 2n=31

origin: Near Houten on the roadside (prov. of Utrecht)

Ref.: SCHEEL, (1931), LÖVE, (1954): 2n=± 32; HEDBERG and HEDBERG, (1964): 2n=32.

Liliaceae

Allium vineale L.

coll. no.: G. et K. 1621 2n=32

origin: Between Bunnik and Utrecht (prov. of Utrecht)

coll. no.: G. et K. 1814 2n=32

origin: On the banks of the IJsselmeer between Huizen and Spakenburg (prov. of Utrecht)

Ref.: LEVAN, (1931), ONNO, (1935), LÖVE and LÖVE, (1948), KURITA, (1956): 2n=32; FERNANDES, GARCIA and FERNANDES, (1948): 2n=40.

Oenotheraceae

Epilobium angustifolium L.

coll. no.: G. et K. 1488 2n=36

origin: Near Diphooorn, Sleen (prov. of Drente)

Ref.: MICHAELIS, (1925, 1926), JOHANSEN, (1929), LÖVE and LÖVE, (1948), BÖCHER and LARSEN, (1950), GAGNIEU and LINDER, (1954, 1955), MULLIGAN, (1957), BRUN, (1958): 2n=36; MULLIGAN, (1957): 2n=72.

Papaveraceae

Chelidonium majus L.

coll. no.: G. et K. 1390 2n=12

origin: Near Rhenen, Grebbeberg (prov. of Utrecht)

coll. no.: G. et K. 1697 2n=12

origin: Dunes near Schoorl (prov. of Noord-Holland)

coll. no.: G. et K. 1741 2n=12

origin: Emmen, in a garden (prov. of Drente)

- coll. no.: G. et K. 1788 2n=12
 origin: Wageningse Berg, Wageningen (prov. of Gelderland)
 Ref.: WINGE, (1917), MARCHAL, (1920), SUGIURA, (1936, 1940), TURESSON, (1938), NAGAO and SAKAI, (1943, 1944), BOWDEN, (1940, 1945), NAGAO and MASINA, (1943, 1944), LÖVE and LÖVE, (1944), JANAKI AMMAL, in DARLINGTON et al., (1945), FELFÖLDY, (1947), TARNAVSCHI, (1948), HARA, (1949), POLYA, (1949), BERNSTRÖM, in TISCHLER, (1950), MATICK, in TISCHLER, (1950), LARSEN, (1954), SUZUKI and MASUTANI, (1959), THALER, (1959): 2n=12; JINNO, (1964): 2n=10, 20, 12.

Papilionaceae

Genista anglica L.

- coll. no.: G. et K. 1300 2n=42
 origin: Between Ermelo and Nieuw-Milligen (prov. of Gelderland)
 Ref.: MAUDE, (1939, 1940): 2n=42; SANTOS, (1945): 2n=48.

Lotus corniculatus L.

- coll. no.: G. et K. 1868, 1876, 1878, 1879, 1880 2n=24
 origin: In the dunes north of Oosterend, Isle of Terschelling
 coll. no.: G. et K. 2472, 2473 2n=24
 origin: Near Oosterend, Isle of Terschelling
 coll. no.: G. et K. 2565 2n=24
 origin: Dunes near Camperduin (prov. of Noord-Holland)
 coll. no.: G. et K. 2603 2n=24
 origin: Near Terziet (prov. of Limburg)
 Ref.: ZERTOWA, (1961): 2n=12; ZAJAKOWA, (1963), FAVARGER and HUYNH, in LÖVE and SOLBRIG, (1964), BENT, (1962): 2n=12, 24; TSCECHOW and KARTASHOVA, (1932), DAWSON, (1941), MILOVIDOV, (1941), TOMÉ and JOHNSON, (1945), GUINOCHE, (1946), JALAS, (1950), KISHORE, (1951), FAVARGER, (1953), LARSEN, (1954, 1955), LÖVE and LÖVE, (1956), SHIBATA, (1957), UJHELYI, (1960), LARSEN and ZERTOWA, (1963): 2n=24.

Ononis repens L.

- coll. no.: G. et K. 2146 2n=60
 origin: In the dunes near Bergen (prov. of Noord-Holland)
 Ref.: LARSEN, (1956): 2n=30, 60; REESE, (1952): 2n=32; MORISSET, (1964): 2n=± 64; MORTON, (1956): 2n=64.

Plantaginaceae

Plantago coronopus L.

- coll. no.: G. et K. 1600, 1992, 1993, 1994, 2854, 2869, 2870, 2871, 2872, 2873, 2875, 2876, 2877, 2878, 2879, 2880, 2882, 2883, 2888. 2n=10

- origin: Strandhaak, Oost-Voorne (prov. of Zuid-Holland)
coll. no.: G. et K. 1696, 1708, 1709, 1710, 1711, 1712, 2177,
2178 2n = 10
origin: Hondsbossche Zeewering, near Camperduin (prov.
of Noord-Holland)
coll. no.: G. et K. 2483, 2485, 2486, 2488, 2489, 2490, 2491,
2493, 2497 2n = 10
origin: "De Groede", east of Oosterend, Isle of
Terschelling
coll. no.: G. et K. 2891, 2494 2n = 10
origin: West of Oost-Voorne (prov. of Zuid-Holland)
coll. no.: G. et K. 2864 2n = 10
origin: Strandhaak, near Oost-Voorne (prov. of Zuid-
Holland)
Ref.: MACCULLAGH, (1934), LÖVE and LÖVE, (1944), GUINO-
CHET and GORENFLOT, (1952), RODRIGUES, (1953),
BÖCHER, LARSEN and RAHN, (1953), HYDE, (1953), FUJI-
WARA, (1955, 1956), PALIWAL and HYDE, (1958): 2n = 10;
BÖCHER, LARSEN and RAHN, (1955), GORENFLOT, (1959),
PALIWAL and HYDE, (1959): 2n = 10 + 1B; GUINOCHET
and GORENFLOT, (1952), GORENFLOT, (1959), LARSEN,
(1960): 2n = 20; BÖCHER, LARSEN and RAHN, (1953,
1955): 2n = 30.

Plantago maritima L.

- coll. no.: G. et K. 2012, 2013, 2014 2n = 12
origin: Rimkeskooi, east of Oosterend, Isle of
Terschelling
Ref.: EKSTRAND, (1918), MACCULLAGH, (1934), GRIESINGER,
(1937), WULFF, (1937), TARNAVSCHI, (1938), GREGOR,
(1939), SCHEERER, (1940), HAGERUP, (1941), EARNSHAW,
(1942), POLYA, (1948), LÖVE, in TISCHLER, (1950), RODRI-
GUES, (1953, 1954), LARSEN, (1954), LÖVE and LÖVE, (1956),
JÖRGENSEN, SÖRENSEN and WESTERGAARD, (1958),
SORSA, (1961), HEDBERG and HEDBERG, (1964), BÖCHER
et al., (1963), CZAPSKA, in SKALINSKA et al., (1961):
2n = 12; SORSA, (1962): 2n = 24.

Plantago media L.

- coll. no.: G. et K. 2012, 2013, 2014 2n = 24
origin: Roadside near Utrecht
Ref.: RAHN, (1954, 1957): 2n = 12; MACCULLAGH, (1934), SUGI-
URA, (1937, 1940), TURESSON, (1938), POLYA, (1950),
RAHN, (1954, 1957), CZAPSKA, (1959): 2n = 24.

Primulaceae

Lysimachia nummularia L.

- coll. no.: G. et K. 1769 2n = 45
origin: Grebbeberg, Rhenen (prov. of Utrecht)

- coll. no.: G. et K. 1944 2n = 45
 origin: Quackjeswater, Rockanje (prov. of Zuid-Holland)
 Ref.: GADELLA and KLIPHUIS, (1963): 2n=32, 43; LEVITSKY,
 in TISCHLER, (1935, 1936), WULFF, (1938), CZAPIK, in
 SKALINSKA et al., (1964): 2n=36.

Ranunculaceae

Ficaria verna Huds.

- coll. no.: G. et K. 1637 2n = 32
 origin: Oud-Amelisweerd, near Utrecht (prov. of Utrecht)
 Ref.: LANGLET, (1927, 1936), NEGODI, (1930, 1937), LARTER,
 (1932), MARSDEN-JONES and TURRILL, (1935, 1952),
 NEVES, (1942, 1944), ALLEN and BING, (1957), ALLEN,
 (1958), HEYWOOD and WALKER, (1961): 2n=16; LOSCH-
 NIGG, (1926), NEVES, (1942, 1944), WINKLER, (1926):
 2n=24; HOQUETTE, (1922), LANGLET, (1927), LARTER,
 (1932), MARSDEN-JONES and TURRILL, (1935, 1952),
 NEGODI, (1937), BÖCHER, (1938), NEVES, (1942, 1944),
 DELAY, (1947), POLYA, (1950), PERJE, (1952, 1953),
 TSCHERMAK-WOESS and DOLEZAL, (1953), ANDREAS,
 (1954), ALLEN and BING, (1957), ALLEN, (1958), SATCZEK,
 in SKALINSKA et al., (1959), HEYWOOD and WALKER,
 (1961): 2n=32; RIBBANS, in MAUDE, (1939): 2n=40;
 RUTLAND, (1941): 2n=48.

Ranunculus sceleratus L.

- coll. no.: G. et K. 1646 2n = 16
 origin: Between Utrecht and Bunnik (prov. of Utrecht)
 coll. no.: G. et K. 2069 2n = 32
 origin: In a ditch near Ellecom (prov. of Gelderland)
 coll. no.: G. et K. 2416 2n = 32
 origin: Hoornerkooi, Isle of Terschelling
 coll. no.: G. et K. 2741 2n = 32
 origin: Near Loosdrecht (prov. of Utrecht)
 Ref.: LANGLET, (1936), COONEN, (1939), GREGORY, (1941),
 NEVES, (1944), FELFÖLDY, (1947), KURITA, (1955),
 SOKOLOWSKAJA-KULCZYCKA, in SKALINSKA et al., (1961),
 COOK, (1963): 2n=32.

Rosaceae

Fragaria vesca L.

- coll. no.: G. et K. 1661, 1680 2n = 14
 origin: Fort Hoofddijk, De Bilt (prov. of Utrecht)
 coll. no.: G. et K. 2326 2n = 14
 origin: Wood near Wijlre (prov. of Limburg)
 coll. no.: G. et K. 2337 2n = 14
 origin: Savelsbos, Rijckholt (prov. of Limburg)
 Ref.: ICHIJIMA, (1926, 1930), LONGLEY, (1926), MANGELSDORF,
 (1927), MANGELSDORF and EAST, (1927), CRANE, (1929),

YARNELL, (1929, 1931), EAST, (1930, 1934), RUDLOFF, (1930), SCHIEMANN, (1931, 1941, 1951), FEDEROVA, (1934, 1946), DARROW, (1937), TURESSON, (1938), DOGADKINA, (1941), NILSSON and JOHANSEN, (1944), DELAY, (1947), JANAKI-AMMAL, (1951), SCOTT, (1951), STAUDT, (1951, 1952, 1953, 1962), HASKELL and WILLIAMS, (1954), HARLAND, (1955), LÖVE and LÖVE, (1956), CZAPIK, in SKALINSKA et al., (1959): $2n=14$; BRINGHURST and KHAN, (1963): $2n=35$ (hybrids).

Scrophulariaceae

Veronica arvensis L.

coll. no.: G. et K. 2090 $2n=16$
 origin: Grebbeberg, Rhenen (prov. of Utrecht)

Ref.: LÖVE and LÖVE, (1956), AFANASIYEVA and MESHKOVA, (1961): $2n=14$; HEITZ, (1926), HOFELICH, (1935), LARSEN, (1956): $2n=16$.

Solanaceae

Solanum nigrum L.

coll. no.: G. et K. 1471 $2n=72$
 origin: Between Utrecht and Bunnik (prov. of Utrecht)

Ref.: NANDA, (1962), CHUANG et al., (1963), BORGMANN, (1964): $2n=24$; BEZBARUAH and BEZBARUAH, (1963), TANDON and RAO, (1964): $2n=24, 48, 72$; WINKLER, (1910, 1916, 1921, 1924), STOMPS, (1925), WINGE, (1925), JÖRGENSEN and CRANE, (1927), VILMORIN and SIMONET, (1927, 1928), JÖRGENSEN, (1928), BHADURI, (1933), TOKUNAGA, (1934), ELLISON, (1936), NAKAMURA, (1937), NISHIMURA, (1939), WESTERGAARD, (1948), STEBBINS and PADDOCK, (1949), POLYA, (1950), WULFF, (1950), GAGNIEU and LINDER, (1951, 1953, 1954, 1955), BRABEC, (1954), GOTTSCHALK, (1954), LÖVE, (1954), GAGNIEU et al., (1956), BAYLIS, (1958), MULLIGAN, (1961), TURALA and URBAN, in SKALINSKA et al., (1964): $2n=72$.

Umbelliferae

Aegopodium podagraria L.

coll. no.: G. et K. 1679, 1683 $2n=42$
 origin: Rhijnauwen, near Utrecht (prov. of Utrecht)

coll. no.: G. et K. 1693, 1694 $2n=42$
 origin: Inner dune-ridge near Schoorl (prov. of Noord-Holland)

Ref.: MALHEIROS-GARDÉ and GARDÉ, (1950, 1951): $2n=22$; POLYA, (1949): $2n=42$; MELDERIS, (1930), HÅKANSSON, (1953), LÖVE and LÖVE, (1956), SORSA, (1962): $2n=44$.

Chaerophyllum temulum L.

coll. no.: G. et K. 1371 $2n=14$
 origin: Grebbeberg, Rhenen (prov. of Utrecht)

- coll. no.: G. et K. 1413 2n=22
 origin: Grebbeberg, Rhenen (prov. of Utrecht)
 Ref.: BÖCHER and LARSEN, (1955): 2n=14; WULFF, (1939):
 2n=22.

Valerianaceae

Valerianella locusta (L.) Betsche

- coll. no.: G. et K. 1792 2n=17, (18)
 origin: Grebbeberg, Rhenen (prov. of Utrecht)
 coll. no.: G. et K. 1790 2n=17, (16, 18)
 origin: Grebbeberg, Rhenen (prov. of Utrecht)
 Ref.: ELVERS, (1932): 2n=14.

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¹⁾ Papers, cited by A. and D. LÖVE in their book: "Chromosome numbers of Central and Northwest European Plant Species", *Opera Botanica Lund* 5: 1-581.1961, had to be omitted for reasons of space.