Flora Montiberica 31: 44-46 (XII-2005)

NEW RECORDS OF DIPLOID *URGINEA PANCRATION* (HYACINTHACEAE) IN CABRERA (BALEARIC ISLANDS)

Josep A. ROSSELLÓ *, **Mercedes CASTRO** ** & **Pere FRAGA*****
* Jardí Botànic, Universitat de València. C/Quart 80, E-46008 València rossello@uv.es
** Facultad de Agronomía, Universidad Central de Venezuela, Apartado 4579, 2101 Maracay, Venezuela
*** Verge del Toro 14, E-07750 Ferreries, Minorca, Balearic Islands

SUMMARY: *Urginea pancration* (Steinh.) Philippe (Hyacinthaceae), previously known from the *Flora Iberica* area from Minorca, is reported for the first time for the flora of Cabrera (Balearic islands). *Urginea pancration* shows a diploid chromosome number (2n=20 + 0-2B) and is morphologically indistinguishable from plants from Minorca.

RESUMEN: Se cita la presencia en la isla de Cabrera (islas Baleares) de *Urginea pancration* (Steinh.) Philippe (Hyacinthaceae), conocida previamente en el ámbito ibérico de la isla de Menorca. Las poblaciones de Cabrera son diploides (2n=20), presentan cromosomas accesorios (0-2 B) y son morfológicamente coincidentes con las plantas de Menorca.

INTRODUCTION

The *Urginea maritima* (L.) Baker complex, red skill, is an aggregate of diploid, tetraploid, and hexaploid cytotypes growing in the Mediterranean basin and adjacent areas. Subtle morphological differentiation has been detected within *U. maritima*, and some authors recognized up to six species within the complex (SPETA 1980). Recently, plants ascribed to *Urginea pancration* (Steinh.) Philippe have been reported (FRAGA, GARCÍA & PONS 2003) from several populations from Minorca (Balearic islands) and their diploid status has been cytologically checked (BOSCAIU, BACHETTA & GÜEMES 2004).

During field work aimed to study the endemic element of Cabrera (Balearic Islands), we found several *Urginea* populations in the island. The plants closely resembled *U. maritima* and our attention was drawn to them at first because they showed bulbs with white (instead of red) scales, a key feature discriminating *U. pancration.*

Verifying the chromosomal number is the definitive method of identifying plants within the *U. maritima* complex and in this paper we report the cytogenetic features of the *Urginea* plants from Cabrera.

MATERIAL AND METHODS

Root tips emerging from potted bulbs were pre-treated with 0.002 M 8-hydroxyquinoline solution for 2h at 4 ºC and 2h at room temperature, washed with distilled water, fixed in fresh Carnoy I solution overnight and stored in 70% ethanol at 4ºC until use. For chromosome counts and karyotype determination root tips were hydrolysed for 5-10 min in 1M HCl at 60ºC, washed and stained in aceto-orcein for 4-6 h. Stained meristems were squashed in a drop of 45% acetic acid and permanent preparations were made by mounting in Canada balsam. Photomicrographs of well-spread metaphases were taken with an Olympus Camedia C-2000-Z digital camera and processed with Adobe Photoshop 7.0. Chromosome counts were made from at least five well-spread metaphases by direct observation and from the photomicrographs. Chromosome measurements were made on digital images using the processing image software ImageTool 5.0. The karyograms were obtained from the chromosome measurement of five well-spread metaphase plates. For each metaphase plate, the length of the short (S) and long (L) arms of chromosomes, as well as the length of satellites, was expressed in relative values (haploid chromosome set = 100%). For centromere position, the nomenclature of LEVAN, FREDGA & SANDBERG (1964) was followed.

RESULTS

Urginea pancration (Steinh.) Philippe

BALEARIC ISLANDS: Cabrera, between Coll Roig and L'Enciola, dry slopes on sunny places, 5-VI-2005, *M.A. Conesa, A. Molins & J.A. Rosselló*. No voucher. Living plants cultured at the Botanical Garden of Valencia University. 2*n* = 20 + 0-2 B.

Id.: id., Cala Galiota, maritime slopes on sunny places, 5-VI-2005, *M.A. Conesa, A. Molins & J.A. Rosselló*. No voucher. Living plants cultured at the Botanical Garden of Valencia University 2*n* = 20 + 0-2 B.

Metaphase mitotic plates (Figure 1) showed a karyotype formed by two conspicuous long (14-18 µm) telocentric pairs, one subtelocentric pair (circa 9 µm), five subtelocentric pairs (3–6 µm), and two submetacentric (3–6 µm) chromosome pairs. Some cells of both accessions showed, in addition to the regular complement, 21 and 22 chromosomes that are here interpreted as B chromosomes.

DISCUSSION

Plants from two populations of the *Urginea maritima complex* from Cabrera have shown a diploid level (2*n* = 2x =20) and are indistinguishable on vegetative grounds from the diploid plants of Minorca identified as *U. pancration* (FRAGA, GARCÍA & PONS 2003). They shared small bulbs (less than 10 cm of diameter), covered with white scales, and showed prostrate leaves, at least the external ones. This morphology does not match with that exhibited by the diploid *Urginea* from Sicily (BOSCAIU, BACHETTA & GÜEMES 2004), suggesting that all diploid plants from the Balearic islands belong to the same taxon.

Currently, we do not know how many cytotypes from the *Urginea maritima* complex are present in Cabrera. *Urginea maritima* s.l. is widespread in the Cabrera archipelago (PALAU 1976) and it is likely that the tetraploid cytotype (the only other cytotype so far recorded in the Balearic islands) could also be found there. However, we infer that *U. pancration*, in Cabrera, is more widespread than the two karyologically studied populations could suggest. In fact, the figured *Urginea* po-

pulations from Cabrera, given in RITA & BIBILONI (1993: 231), could be identified with *U. pancration* on the basis of leaf features.

ACKNOWLEDGEMENTS

We thank our colleagues M.A. Conesa, A. Molins and M. Mus for their help with the field sampling. This work has been partly supported by funds of the project MMA 034/2002.

REFERENCES

BOSCAIU, M.; BACHETTA, G.; GÜEMES J. (2003) Morphological differentiation within the diploid cytotypes of *Urginea maritima* s.l. (Hyacinthaceae). *Bocconea* 16: 549-555.

FRAGA, P.; GARCÍA, O.; PONS, M. (2003) Notes i contribucions al coneixement de la flora de Menorca. *Boll. Soc. Hist. Nat. Balears* 46: 51-66.

LEVAN, A.; FREDGA, K.; SANDBERG, A.A. (1964) Nomenclature for centromeric position on chromosomes. *Hereditas* 52: 201-220.

PALAU, P (1976) Catàleg de la flòrula de l'illa de Cabrera i dels illots que l'envolten. *Treb. Inst. Catalana Hist. Nat.* 7: 5-103.

RITA, J.; BIBILONI, G. (1993) La vegetació (Memòria del mapa de les comunitats vegetals). In Alcover, J.A., Ballesteros, E. & Fornós, J.J. (eds.), Història natural de l'arxipèlag de Cabrera. *Mon. Soc. Hist. Nat. Balears* 2: 207-256.

SPETA, F. (1980) Karyosystematik, Kultur und Verwendung der Meerzwiebel (*Urginea* Steinh., Liliaceae s.l.). *Linzer Biol. Beitr*. 12: 193-238.

(Recibido el 4-XI-2005)

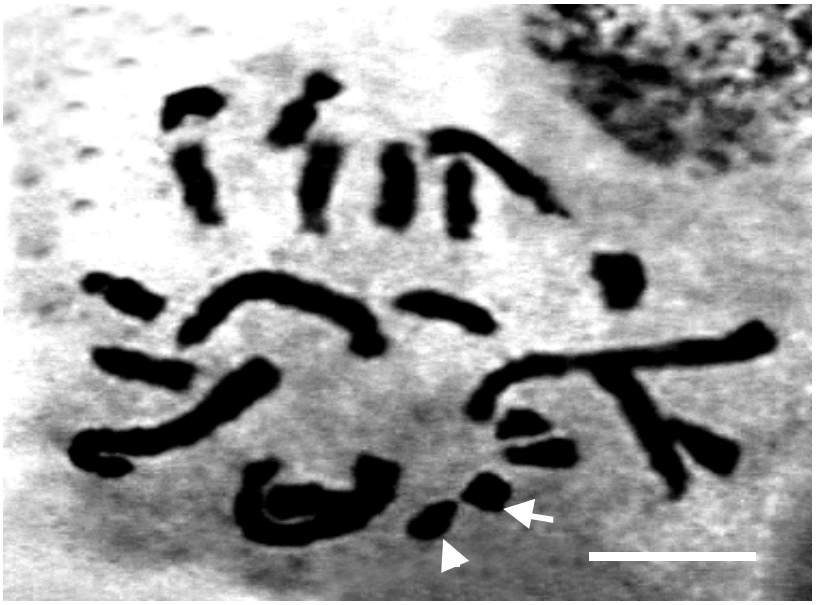

Figure 1. Metaphasic plate of *Urginea pancration* (Cabrera, between Coll Roig and L'Enciola), $2n = 20 + 2B$. Arrows indicate B chromosomes. Scale bar= 10 µm.