Karyological knowledge of the Catalan vascular flora inferred from CromoCat database

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Scope
- CromoCat: Chromosome database of the Catalan Countries
- Wild vascular flora of the Catalan Countries (70,520 km²)
- Taxonomic thesaurus: Bolos et al. (3rd ed., 2005; 4835 taxa)
- Published chromosome counts (1926-2016)

Background
- First design presented at OPTIMA 1998 (Paris)
- Following OPTIMA recommendations (Karyosystematics Comission, 1993)
- Included as an independent module of BBDC (Catalan Biodiversity Database)
- Since 2004 coupled to GenoCat (sister database with molecular diversity data)

2016 Available at http://biodiver.bio.ub.es/biocat/

Results
- 57,012 total number of records
- 8,157 bibliographic references
- 3,135 chromosome number reports from the territories (CRO,IN)
- 34.2% of the total number of native taxa (species and subspecies)

Oldest Report: 1926
- Diploctitis eucracoides (L.) DC (Bassicaceae)
  n=7, Barcelona [s/rec, s/date]


Highest / Lowest CNRs
- Silene citlata Pour. (Caryophyllaceae) 2n = c.228
- Crepis triasis (Cannabiss.) Fr. (Compositae) 2n = 8

CN and cytotypes
- 134 different CN and cytotypes recorded

Geographic representation
The distribution of chromosome data gathered by CromoCat is heterogeneous among regions. The distribution by county (“comarca”) reveals that the greatest karyological diversity and intensity of chromosomal exploration corresponds to the Balearic Islands, Pyrenees and Alacant region, followed by the Ebre Delta and Ports Massif. These data also coincide with the concentration of endemic species.

Example: Number of CNR from Catalonia districts ("Comarques"). Highest number of data from Pyrenean area due to intensive research since A.M. Cauvet Research and P. Kupfer's Ph.D.


Taxonomic representation
Top genera
The genera with more counts from Catalan populations are
- Campanula (Campanulaceae) [175 reports]
- Bromus (Poaceae) [129 reports]

Data explained by the amount of information included in Ph.D.

Derived & Related projects
Experience and analysis of data collected are open opportunities to extend research towards in depth/mo图形cigenetic studies. Some examples:
- Origin of auto/allopolyploids
- Chromosome evolution/mutation under Botanical Garden management
- Chromosomal characteristics of endemic floras
- Design of specialized chromosome databases

Further steps
- To launch a research program to fill chromosome data for taxa of the Catalan vascular flora karyologically unknown
  Combining chromosome reports from Catalan and foreign populations, only 215 taxa (4.4%) still remain karyologically unknown. This limited pack identifies the needs for further research where 3 main groups (c. 1/3 each) can be recognized: a) complex genera, 74 taxa (Alchemilla, Hieracium and Rubus); b) taxonomically unresolved, 40 taxa (but waiting for a revised thesaurus of the Catalan flora, ongoing) and c) 83 taxa truly not counted (or count not captured by CromoCat), some of them endemic.
  To improve friendly browsing experience with CromoCat, including a) a new searchable interface outside BOBC and b) data incorporation to CCDB
  To better exploit information contained in CromoCat and production of a Chromosome Atlas of the Flora of Catalan Countries.