



Cytogenetic characterization of *Hydrangea involucrata* Sieb. and *H. aspera* D. Don complex (Hydrangeaceae): genetic, evolutionary, and taxonomic implications

Submitted by Laurence Hibrant... on Tue, 06/02/2015 - 12:37

Titre	Cytogenetic characterization of <i>Hydrangea involucrata</i> Sieb. and <i>H. aspera</i> D. Don complex (Hydrangeaceae): genetic, evolutionary, and taxonomic implications
Type de publication	Article de revue
Auteur	Mortreau, Eric [1], Siljak-Yakovlev, Sonia [2], Cerbah, Malika [3], Brown, Spencer C. [4], Bertrand, H��l��ne [5], Lambert, Claudie [6]
Editeur	Springer Verlag
Type	Article scientifique dans une revue �� comit�� de lecture
Ann��e	2010
Langue	Anglais
Date	2010
Num��ro	1
Pagination	137-148
Volume	6
Titre de la revue	Tree Genetics and Genomes
ISSN	1614-2950
Mots-cl��s	B chromosomes [7], Base composition [8], DNA content [9], FISH [10], Fluorochrome banding [11], Genetic resources [12], <i>Hydrangea</i> [13], Karyotype features [14]

Résumé en
anglais

The subsection *Asperae* of genus *Hydrangea* L. (Hydrangeaceae) has been investigated for three reasons: several ambiguous classifications concerning *Hydrangea aspera* have been published, unexpected differences in genome size among seven accessions have been reported Cerbah et al. (Theor Appl Genet 103:45–51, 2001), and two atypical chromosome numbers ($2n = 30$ for *Hydrangea involucrata* and $2n = 34$ for *H. aspera*) have been found when all other species of the genus present $2n = 36$. Therefore, these two species and four subspecies of *Hydrangea* in all 29 accessions were analyzed for their genome size, chromosome number, and karyotype features. This investigation includes flow cytometric measurements of nuclear DNA content and bases composition (GC%), fluorochrome banding for detection of GC- and AT-rich DNA regions, and fluorescent in situ hybridisation (FISH) for chromosome mapping of 5 S and 18 S-5.8 S-26 S rDNA genes. In the *H. aspera* complex, the genome size ranged from 2.98 (subsp. *sargentiana*) to 4.67 pg/2C (subsp. *aspera*), an exceptional intraspecific variation of 1.57-fold. The mean base composition was 40.5% GC. Our report establishes the first karyotype for the species *H. involucrata*, and for the subspecies of *H. aspera* which indeed present different formulae, offering an element of discrimination. FISH and fluorochrome banding revealed the important differentiation between these two species (*H. involucrata* and *H. aspera*) and among four subspecies of the *H. aspera* complex. Our results are in agreement with the Chinese classification that places the groups *Kawakami* and *Villosa* as two different species: *Hydrangea villosa* Rehder and *Hydrangea kawakami* Hayata. This knowledge can contribute to effective germplasm management and horticultural use.

URL de la
notice

<http://okina.univ-angers.fr/publications/ua12169> [15]

DOI

10.1007/s11295-009-0235-8 [16]

Lien vers le
document

<http://dx.doi.org/10.1007/s11295-009-0235-8> [16]

Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=11988](http://okina.univ-angers.fr/publications?f[author]=11988)
- [2] [http://okina.univ-angers.fr/publications?f\[author\]=21288](http://okina.univ-angers.fr/publications?f[author]=21288)
- [3] [http://okina.univ-angers.fr/publications?f\[author\]=21289](http://okina.univ-angers.fr/publications?f[author]=21289)
- [4] [http://okina.univ-angers.fr/publications?f\[author\]=21290](http://okina.univ-angers.fr/publications?f[author]=21290)
- [5] [http://okina.univ-angers.fr/publications?f\[author\]=21291](http://okina.univ-angers.fr/publications?f[author]=21291)
- [6] [http://okina.univ-angers.fr/publications?f\[author\]=21292](http://okina.univ-angers.fr/publications?f[author]=21292)
- [7] [http://okina.univ-angers.fr/publications?f\[keyword\]=17981](http://okina.univ-angers.fr/publications?f[keyword]=17981)
- [8] [http://okina.univ-angers.fr/publications?f\[keyword\]=17977](http://okina.univ-angers.fr/publications?f[keyword]=17977)
- [9] [http://okina.univ-angers.fr/publications?f\[keyword\]=17976](http://okina.univ-angers.fr/publications?f[keyword]=17976)
- [10] [http://okina.univ-angers.fr/publications?f\[keyword\]=17980](http://okina.univ-angers.fr/publications?f[keyword]=17980)
- [11] [http://okina.univ-angers.fr/publications?f\[keyword\]=17979](http://okina.univ-angers.fr/publications?f[keyword]=17979)
- [12] [http://okina.univ-angers.fr/publications?f\[keyword\]=12414](http://okina.univ-angers.fr/publications?f[keyword]=12414)
- [13] [http://okina.univ-angers.fr/publications?f\[keyword\]=17975](http://okina.univ-angers.fr/publications?f[keyword]=17975)
- [14] [http://okina.univ-angers.fr/publications?f\[keyword\]=17978](http://okina.univ-angers.fr/publications?f[keyword]=17978)
- [15] <http://okina.univ-angers.fr/publications/ua12169>
- [16] <http://dx.doi.org/10.1007/s11295-009-0235-8>

Publié sur *Okina* (<http://okina.univ-angers.fr>)