Chromosome Number of the Genus *Afgekia* Craib (Leguminosae)

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Afgekia Craib is a small genus, in the family Leguminosae. The genus consists of 2 species: *A. sericea* Craib and *A. mahidolae* Burt and Chermisrivathana, which is endemic to Thailand (Burt and Chermisrivathana 1971). The former species is found in Nakhon Ratchasima and Chaiyaphum provinces in the northeast and the latter species has a restricted distribution in Kanchanaburi in the southwest (Prathepha 1990). As the geographical range of these two species does not overlap and the cytological studies has not been studied. The aim of this project is to study chromosome number and meiotic configuration.

Materials and methods

The materials were taken from living plants in their natural habitats. The voucher specimens are kept at Mahasarakham University, Mahasarakham. For mitotic studies, slides were prepared after Chaiyasut (1989). Root-tip were pretreated in saturated alpha-bromonaphthalene solution which were kept at in an oven at 4°C for 28 hr. Then the root-tip were washed with distilled water, fixed in 90% acetic acid for 30 min, washed with 70% ethyl

Figs. 1-4. 1-2. Photomicrographs of somatic metaphase chromosome. 1, *A. sericea* ($2n=16$). 2, *A. mahidolae* ($2n=16$). 3-4. Photomicrographs showing chromosome pairings of PMCs. 3, *A. sericea* (8II). 4, *A. mahidolae* (8II). $\times 2300$.

Table 1. Meiotic configuration of *A. sericea* and *A. mahidolae*

Species	No. cells	No. bivalent		No. chiasmata/cell
		Ring	Rod	
<i>A. sericea</i> (2n=16)	5	8	0	80
	3	7	1	45
	2	6	2	28
Total	10	73	7	153
Mean	1	7.0	1.0	15.0
<i>A. mahidolae</i> (2n=16)	1	8	0	16
	7	7	1	105
	1	6	2	14
Total	9	63	9	135
Mean	1	7.0	1.0	15.0

alcohol 2–3 times, hydrolysed in 1 N HCl for 12 min at 60°C and then transferred to Schiff's reagent solution for 2–3 hr. The root-tips were dropped in warmed 2% propionocarmine solution, and squashed on slide.

For meiotic studies, flower buds (pollen mother cells, PMC) were fixed in Carnoy's solution for 24 hr and then washed with 90% ethyl alcohol 2–3 times and transferred to 70% ethyl alcohol and kept at the room temperature. The PMC were prepared by simple propionocarmine smear technique. Measurements of chromosomes were taken using micrometer and photographed on a Olympus Vanox-T AH-2 microscope.

Results and discussion

The results show that two species studied have the same chromosome number of $2n=16$ (Figs. 1, 2) and are known as diploids. The chromosomes are small in size which *A. sericea* (3.8 and 6.3 μm , 4.7 ± 0.8) is slightly smaller than that of *A. mahidolae* (3.8 and 7.5 μm , 5.4 ± 1.0). Meiotic studies in both species show 8 bivalents at metaphase I (Figs. 3, 4) and the configuration is same pattern which exhibits seven ring bivalents and a rod bivalent (Table 1). The meiotic pattern shows the occurrence normalities provide the evident of fertility of germ cells.

Summary

The mitotic chromosome and chromosome configuration in meiosis were studied in the genus *Afgekia*: *A. sericea* and *A. mahidolae*. Both species are diploid which share the same chromosome number, $2n=16$, and 8 bivalents at metaphase I.

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