

Nuclear DNA content variation in life history phases of the Bonnemaisoniaceae (Rhodophyta)

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Nuclear DNA content in gametophytes and sporophytes or the prostrate phases of the following species of Bonnemaisoniaceae (*Asparagopsis armata*, *Asparagopsis taxiformis*, *Bonnemaisonia asparagoides*, *Bonnemaisonia clavata* and *Bonnemaisonia hamifera*) were estimated by image analysis and static microspectrophotometry using the DNA-localizing fluorochrome DAPI (4',6-diamidino-2-phenylindole, dilactate) and the chicken erythrocytes standard. These estimates expand on the Kew database of DNA nuclear content. DNA content values for 1C nuclei in the gametophytes (spermatia and vegetative cells) range from 0.5 pg to 0.8 pg, and for 2C nuclei in the sporophytes or the prostrate phases range from 1.15-1.7 pg. Although only the 2C and 4C values were observed in the sporophyte or the prostrate phase, in the vegetative cells of the gametophyte the values oscillated from 1C to 4C, showing the possible start of endopolyploidy. The results confirm the alternation of nuclear phases in these Bonnemaisoniaceae species, in those that have tetrasporogenesis, as well as those that have somatic meiosis. The availability of a consensus phylogenetic tree for Bonnemaisoniaceae has opened the way to determine evolutionary trends in DNA contents. Both the estimated genome sizes and the published chromosome numbers for Bonnemaisoniaceae suggest a narrow range of values consistent with the conservation of an ancestral genome. © 2014 Salvador Soler et al.