

Nuclear DNA content in gelidium chilense (Gelidiales, Rhodophyta) from the chilean coast [Contenido de ADN nuclear en Gelidium chilense (Gelidiales, Rhodophyta) de la costa chilena]

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There has been progress in novel additions of algal data to the Plant DNA C-values database during recent years; however more information is still required. Specifically, in the case of red algae (Rhodophyta), from ~6000 species described up to date, DNA C-values for only 196 species have been incorporated (~3%). This research represents the first estimation of genome size for the Southeast Pacific endemic red alga *Gelidium chilense* and provides nuclear features such as number per cell and size. Nuclear DNA content estimates were obtained from measurements of 153 DAPI-stained nuclei. The cells of *G. chilense* showed intra-plant variation with DNA content values ranging from 0.2-4.0 pg and a total of 6 ploidy levels were found. The lowest level (1C) was observed only in outer cortical cells whereas tetrasporangia displayed the highest levels (16C). The nuclear DNA contents obtained in tetrasporangia indicated that the genome size increases during tetrasporogenesis by endopolyploidy (from 4C to 16C). In addition, the minimum value observed in tetraspores corresponds to a 3C. Our results confirm the hypothesis that meiosis does not occur within the sporangia in *G. chilense*. This study contributes to knowledge of reproductive strategies related with the life history of Gelidiales. © 2016, Universidad de Valparaíso. All Rights Reserved.

DNA content

Endoreduplication

Gelidium

Life history

Ployploidy

alga

coastal zone

DNA

endemic species

life history

polyploidy

reproductive strategy

Chile

algae

Gelidiales

Gelidium

Gelidium chilense

Rhodophyta