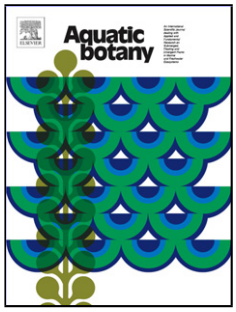

Title: Karyomorphology and DNA quantification in the marine angiosperm H*alophila stipulacea* (Forsskål) Ascherson from Mediterranean and Red Seas

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PII: S0304-3770(17)30363-7
DOI: https://doi.org/10.1016/j.aquabot.2018.04.001
Reference: AQBOT 3021

To appear in: *Aquatic Botany*

Received date: 17-11-2017
Revised date: 26-3-2018
Accepted date: 4-4-2018

Please cite this article as: Gargiulo GM, Vilardo I, Cambrea G, Gemelli F, Crosca A, Karyomorphology and DNA quantification in the marine angiosperm H*alophila stipulacea* (Forsskål) Ascherson from Mediterranean and Red Seas, *Aquatic Botany* (2010), https://doi.org/10.1016/j.aquabot.2018.04.001

Karyomorphology and DNA quantification in the marine angiosperm H*alophila stipulacea* (Forsskål) Ascherson from Mediterranean and Red Seas.

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Highlights

- First karyomorphological and genome size data on Mediterranean *Halophila stipulacea* populations are reported
- An attempt to compare the published chromosome and DNA amount data among *Halophila* species is presented
- Existence of a constant karyotype among the *Halophila* species is highlighted

Abstract

Cytogenetic studies for systematic and evolutionary purposes are lacking on marine phanerogams. *Halophila stipulacea* is a tropical seagrass that invaded the Mediterranean from the Red Sea through the Suez Canal. In this study, we report, for the first time, the karyotype features and genome size of *H. stipulacea* populations from different localities. Also, an attempt to compare our data with those reported in literature on other *Halophila* species is discussed. To determine the karyological relationships among taxa, we used basic karyotypic features such as chromosome number, size and symmetry, and position of chromosomal landmarks. To estimate karyotype asymmetry, the Coefficient of Variation of Chromosome Length (CV_{CL}) and the Mean Centromeric Asymmetry (M_{CA}) values were calculated. The estimations of DNA amounts were carried out by Image Cytometry (IC) using the interphase-peak method. All the taxa, including those reported in literature, present a uniform and slightly bimodal karyotype, but significant differences are found in nuclear DNA content among species. Each taxa had a karyotype formula 2*n*= 18= 10*m* + 2*sm* + 6*st*. Aneuploidy and polyploidy seemed to not be involved in the speciation of this genus. The conserved karyotype in these taxa suggests the presence of mechanisms selecting for constancy, or against changes, in karyotype number and morphology.