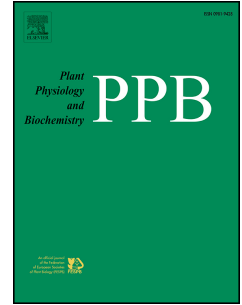


# Accepted Manuscript

Structural and molecular strategy of photosynthetic apparatus organisation of wild flora halophytes

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1 **STRUCTURAL AND MOLECULAR STRATEGY OF PHOTOSYNTHETIC**  
2 **APPARATUS ORGANIZATION OF WILD FLORA HALOPHYTES**

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15

16 Abstract

17 Structural and molecular parameters of photosynthetic apparatus in plants with different  
18 strategies for the accumulation of salts were investigated. CO<sub>2</sub> gas exchange rate, content of  
19 pigments, mesostructure, chloroplast ultrastructure and the biochemical composition of the  
20 membrane structural components in leaves were measured. The objects of the study were  
21 euhalophytes (*Salicornia perennans*, *Suaeda salsa*, *Halocnemum strobilaceum*), crynohalophyte  
22 (*Limonium gmelinii*), glycohalophyte (*Artemisia santonica*). Euhalophytes *S. perennans* and *S.*  
23 *salsa* belong to the plants of the halosucculent type, three other species represent the xerophilic  
24 type. The highest photosynthetic activity estimated by the average parameters of CO<sub>2</sub> gas  
25 exchange rate in the leaves was observed in *S. perennans* plants. Plants of the xerophyte type  
26 including both *H. strobilaceum* euhalophyte and cryno- and glycohalophytes are described by  
27 lower values of these characteristics. Larger cells with a great number of chloroplasts and a high  
28 content of membrane glycerolipids and unsaturated C18:3 fatty acid, but with smaller pigment  
29 and light-harvesting complexes size characterize the features of euhalophytes with a succulent  
30 leaf type. Thus, features of the mesostructure, ultrastructure, and supramolecular interactions of  
31 the halophyte PA were closely related to the functional parameters of gas exchange, and were  
32 characterised by the strategy of species in relation to the accumulation of salts, the life form of  
33 plants, and the attitude to the method of water regulation.

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