

## **Evaluation of Chlorophyll Fluorescence and Physiological Characteristics of Spring Rapeseed (*Brassica rapa* L.) Cultivars Under Salt Stress**

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### **Abstract**

The present study was conducted in order to evaluate the response of chlorophyll fluorescence and physiological characteristics of spring rapeseed cultivars in salin condition at Yasouj University in 2006/2007. Four salinity levels [(1.92 (as control), 9.87, 19.6 and 21.94 dSm<sup>-1</sup> (NaCl and CaCl<sub>2</sub> with 20 to 1 ratio)] and eight cultivars (PP-308-8, PP-401-16, Hyola330, Hyola60, Hyola401, Rgsoo, Oftion500 and PP-401-15E) were examined in a factorial experiment based on completely randomized design with three replications in greenhouse conditions. Parameters of chlorophyll fluorescence were recorded on the fully expanded youngest leaf at vegetative and reproductive (20 day after blooming) stages. Parameters of fluorescence (Maximum quantum yield of PSII (F<sub>m</sub>/F<sub>m</sub>), Quantum yield of PSII (ΦPSII), Photochemical quenching (qP) and Non-photochemical quenching (qN)), content of chlorophyll (chl<sub>a</sub>, chl<sub>b</sub> and chl<sub>a+b</sub>), proline, total dry weight, grain and oil yield were measured. Analysis of variance indicated that effect of salinity, cultivar and interaction of salinity × cultivar were significant for all the above mentioned characters. Results showed that by increasing salinity level the characters were significantly reduced except Non-photochemical quenching (qN) and praline. Generally, based on all aspects, Hyola60 cultivar which showed higher amount for ΦPSII (at vegetative and reproductive), F<sub>v</sub>/F<sub>m</sub> (at vegetative and reproductive), qP (at vegetative and reproductive), chl<sub>a</sub>, chl<sub>b</sub>, chl<sub>a+b</sub>, total dry wight, grain yield and oil yield in high salinity levels and PP-401-15E cultivar which showed low amount for all the above characters except for qN (at vegetative and reproductive) in high salinity levels were introduced as the most tolerant and sensitive cultivars to salinity, respectively.

**Keywords:** *Rapeseed, Proline, Salinity stress, Chlorophyll fluorescence, Chlorophyll content*