

عنوان مقاله:

(Biochemical and Physiological Analysis of Flag Leaf Senescence in Field-Grown Barley (*Hordeum vulgare*)

محل انتشار:

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خلاصه مقاله:

Barley is an important feed grain in many areas such as Canada, Europe and in the U.S. It has also so important for animal feed and has several other usages such as alcohol industry, malt productive and biomass-fuels. The characteristics of physiological and biochemical events during leaf senescence either flag leaf or other leaves have been investigated in field-grown barley (*Hordeum vulgare* cv. *Hordea*). The traits included grain yield, chlorophyll and protein levels, CO₂ assimilation rate, fluorescence, α -tocopherol and carotenoid levels, cellular oxidative level and chloroplast-encoded gene expression. The result showed significant role of flag leaf in grain yield. The chlorophyll and protein levels decline dramatically during senescence particularly in other levels. This result was quite similar for net CO₂ assimilation rate and maximal efficiency of PSII photochemistry (Fv/Fm). This suggests that PSII apparatus remains functional in senescent flag leaf. Two main lipid-soluble antioxidant agents (α -tocopherol and carotenoid) showed significant increase particularly in flag leaf at late senescence stage around ۲۵ days after anthesis, the level of lipid and other macromolecular-derived peroxidation has been measured by TBARM assay. The TBARM levels increased gradually during flag leaf and particularly other leaves senescence. The transcript levels of the chloroplast-encoded psbA decrease during senescence especially in other leaves. However, the transcript level was significantly higher in flag leaf leading to high level of photosynthesis capacity at the molecular level.

کلمات کلیدی:

Photosynthesis, Senescence, flag leaf, Fluorescence, TBARM

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