

عنوان مقاله:

Characterizing the circadian root growth oscillations in *Arabidopsis thaliana*

محل انتشار:

بیستمین کنگره ملی و هشتمین کنگره بین‌المللی زیست‌شناسی ایران (سال: 1397)

تعداد صفحات اصل مقاله: 1

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خلاصه مقاله:

Circadian rhythms are biological rhythms with a period close to 24h which persist in the absence of the external clues. Although circadian rhythmic leaf expansion have been well reported for long time, existence of rhythms in root elongation has just been reported recently. Extensive experiments performed on different genotypes and accessions of *Arabidopsis thaliana* in different photoperiods and nutrient availabilities demonstrated rhythmic root elongation patterns. Common to these experiments, the diurnal root elongation rate pattern exhibits 5 distinct phases; 1) a peak of enhanced growth activity 1.5 h after dawn, 2) declining growth rates during the major part of the light period, 3) increasing root elongation rates during the last 5 h prior to dusk, 4) an hour of growth inhibition right after dusk and its subsequent recovery, and 5) progressive increase of growth activity throughout the dark period up to shortly after the next dawn. Extensive experiments demonstrated that root elongation is mainly controlled by the circadian clock, and influenced by carbohydrate availability. Furthermore, light-dark transitions impose a transient stimulation on root elongation pattern

کلمات کلیدی:

Arabidopsis thaliana, Circadian rhythms, root elongation

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