LOTUS TENUIS. PLANT RESPONSES TO CHANGES IN DAYLENGTH

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The aim of this study was to know further about *Lotus tenuis* (Waldst et Kit) environmental conditions of growth. Specially we tested the plant induction to flowering under different photoperiods.

MATERIALS AND METHODS

Plants inoculated with rhizobia were cultivated in plastic pots filled with sterilized sand and watered twice a week with a N-free Hoagland nutritive solution. Plants were watered daily with tap water free of nitrates.

After planting; one set of plants was grown under short days (8h of sunlight) and the other one under long days (8h of sunlight + 8h of low energy light 28umol m^{-} sec^{-1}) until 77 days after planting. Afterwards each set of plants was divided in two treatments: one remained under the same photoperiod and the other one was changed to the other one. As a result, we had four treatments:

a) 77 days short days + short days
b) 77 days short days + long days
c) 77 days long days + long days
d) 77 days long days + short days

We did three harvests at 77, 122 and 152 days after planting. Nodule number, each plant part dry weight and nitrogen content together with Net Assimilation Rate (NAR) were determined.

RESULTS

Seventy-seven days after planting plants under short days had more nodules, fixed more nitrogen and had a higher number of leaves than plants grown under long days.

One hundred & fifty-two days after planting plants under continuous short days an + long days fixed more nitrogen and had a higher net assimilation rate 1.91 and 2,06 respectively.

Treatment	NAR
5D + 5D	1,91
5D + LD	2,06
LD + LD	0,92
LD + 5D	1,47

Besides plants under short days + long days were induced to flower. Induction of flowering of 5D + LD plants may be related with their higher NAR and nitrogen fixation or to photoperiod induced changes in hormonal levels.

We concluded that short days followed by long days was the best day length sequence as plant fixed more nitrogen, had the greatest assimilation ratio and were induced to flower.