

PHOTOPERIOD AND NIGHT TEMPERATURE EFFECTS ON LOTUS TENUIS  
I. NODULATION AND NITROGEN FIXATION

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The purpose of this paper was to study the effects of different ecological conditions on nodulation and nitrogen fixation in plants of Lotus tenuis.

Lotus tenuis (Waldst et Kid) (Birdfoot trifoil) seedlings were transplanted to plastic pots on a sand substratum, then inoculated with a suspension culture of autoctonous rhizobium and watered with a nitrogen free Hoagland nutritive solution. The plants were grown in chambers under three different night temperatures, 17°, 21° and 27°C, and for each temperature, at two different photoperiods: a short day one (SD) of 8 h direct solar radiation and a long day one (LD) of 8 h direct solar radiation and of 8 h low intensity light. Five harvests were done at fortnight intervals.

Nodulation and nitrogen fixation was favoured by SD, and for the lower temperatures employed. Foliar area was correlated with both nodulation and nitrogen fixation in a 75% and 80% respectively. It is obvious that under SD a greater number of nodules per unit of foliar area was feeded and the ditribution of assimilates destined to the formation and growth of nodules was wider than under LD. A greater efficiency of nitrogen fixation per unit of foliar area was observed in SD and for the lowest temperatures employed. Nodule tissue was correlated with root tissue in a 58%.