

Short Communication

J Indian bot Soc Vol 77 (1998) 225-226

FLOWERING BEHAVIOUR OF CARROT C.V. EARLY NANTES UNDER THE INFLUENCE OF GA₃ TREATMENT

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(Accepted January, 1998)

Daucus carota cv. Early Nantes plants were subjected to three different photoperiods namely, SD, 1D and ND and to foliar spray of different GA₃ concentrations namely 10⁻³M-10⁻⁵M. Three months old plants grown in long day conditions could be made to flower with the foliar spray of 10⁻⁴M. Growth data were also recorded for all the sets.

Key Words : Carrot, Flowering, Gibberllic acid.

Daucus carota cv. Early Nantes a day-neutral biennial requires cold temperature (Vince Prue, 1975). The present work is an attempt to find out if GA₃ and photoperiod can be appropriately combined so as to result in flowering of carrot in the same season.

Carrot seeds were sown and ten days seedlings were placed under long days (24 hours light period), normal days (11 hours light period) and short days (8 hours light period). Fifteen days old seedlings were given GA₃ treatment for one month. The concentrations tried in this case were 10⁻³M GA₃, 10⁻⁴M GA₃ and 10⁻⁵M GA₃ as foliar sprays on alternate days. A regular record of the growth of plants was kept for a period of 100 days.

In this case when plants were kept in continuous illumination and sprayed with 10⁻⁴M GA₃ (*i.e.* 1 ml of 10⁻⁴M GA₃ contains 34.6 µg of GA₃), they could flower. The other concentrations were ineffective. Friend *et al.* (1963) have shown that under continuous illumination, floral initiation was earlier with every increase in light intensity from 200 to 2500 Ft. C, and

also with every increase in temperature between 10°C to 30°C.

The effects of photoperiod on dry matter production is also correlated with flowering. Vora (1969) studied the influence of environmental conditions on the developing spike of *Avena*. According to him, long photoperiods accelerates the developmental processes and short photoperiods delay them. The dry matter values of the whole plant are lower under long days. This is because the reproductive phase starts much earlier and so the vegetative phase is much shortened. This also explains why the leaf number is less in long days. The dry matter values under short days are lower than normal days because adequate light for photosynthesis was not available.

These results are in agreement with those obtained in wheat (Chinoy and Nanda, 1952b).

Mean RGR is enhanced by the application of GA₃ (Table 1). Thus, in case of short day plants although light is limiting, GA₃, is able to compen-

Table 1: RGR, LWR and NAR values of cv. Early Nantes

	Long Days			Normal Days			Short Days					
	Control	10 ⁻³ M GA ₃	10 ⁻⁴ M GA ₃	10 ⁻⁵ M GA ₃	Control	10 ⁻³ M GA ₃	10 ⁻⁴ M GA ₃	10 ⁻⁵ M GA ₃	Control	10 ⁻³ M GA ₃	10 ⁻⁴ M GA ₃	10 ⁻⁵ M GA ₃
RGR	0.677	0.693	0.747	0.748	0.694	0.747	0.898	0.774	0.639	0.761	0.898	0.870
LWR	0.733	0.579	0.516	0.388	0.532	0.547	0.595	0.571	0.889	0.614	0.522	0.597
NAR	1.127	1.178	1.452	1.329	1.298	1.390	1.533	1.349	1.101	1.246	1.738	1.467

Abstract published in 20th All India Botanical Conference (Dec. 29-31, 1997)

Received March, 1998

sate for the relative growth rate. RGR was highest under normal day photoperiod. And NAR was also highest under normal day photoperiod. The values of LWR did not show much variation.

Thus, although carrot cv. Early Nantes is a bienial, it can be made to flower in the same season by artificial application of 10^{-4} M GA₃ and by keeping the plants in long days condition. Floral initiation starts after 90 days of vegetative growth.

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