中山間地帶에서 참當歸의 花成抑制에 關한 硏究

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Studies on Inhibition Floral Induction of Angelica gigas Nagai in the Middle Mountainous Area

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實驗目的

참當歸에서 크게 問題가 되는 花成抑制를 위해 育苗地帶, 育苗期間, 溫度, 日長 및 改良劑가 抽臺와 品質에 미치는 影響을 究明코자 함.

材料 및 方法

1993年 中山間地帶에 位置하고 있는 慶北 農村振興院 北部試驗場 試驗圃場에서 참當歸의 花成抑制를 위하여 育苗地帶(200, 400, 600m), 育苗期間(2年生 春播苗, 2年生 秋播苗, 1年生 春播苗, 直播栽培), 溫度(無處理, 低溫, 高溫, 低溫/高溫, 高溫/低溫) 및 日長(無處理, 短日, 長日, 夜間照破)에 따른 抽臺反應과 收量, 品質等을 調査하였다.

結果 및 考察

1. 育苗地帶가 높을수록 抽臺率이 顯著하게 낮았고 地下部 生育 및 收量이 良好하여 참當歸의 育苗適地는 標高 400m 以上이 알맞다고 思料된다.
2. 中山間地帶에서는 育苗期間이 짧을수록 抽臺率이 顯著하게 낮아서 收量도 增收되는 反面에 엑기스 含量 및 Decursin 含量도 差異가 없어서 直播栽培가 알맞다고 본다.
3. 溫度處理에 의해서 花成抑制의 效果는 뚜렷하였으나 苗의 腐敗率이 높아 立毛率이 낮아서 高溫處理 溫度 및 低溫處理 期間의 再檢討가 要望된다.
4. 日長處理에 따른 抽臺反應은 短日處理時에는 花成이 誘導되어 抽臺率이 높아지는 傾向이 있으나 長日處理 및 夜間照破에서는 花成이 抑制되어 抽臺率이 낮아지는 傾向을 보였다.

Table 1. Response of bolting and yield of Angelica gigas Nagai according to the altitude of raising seedling area

Altitude (m)	Wt. of fresh root (g) (A)	Wt. of dry root (g) (B)	B/A (%)	Yield of fresh root (kg/10a)	Yield of dry root (kg/10a)	Bolting (%)
200	116.6	44.6	38.2	322	129 b x)	66.4 a
400	120.3	47.2	39.2	711	240 a	45.4 ab
600	124.3	48.5	39.0	570	222 ab	38.1 b

x) Same letters within a column are not significantly at 1% level by DMRT

Table 2. Response of bolting and yield of Angelica gigas Nagai according to the period of raising seedling.

Period of raising seedling	Wt. of fresh root (g) (A)	Wt. of dry root (g) (B)	B/A (%)	Yield of fresh root (kg/10a)	Yield of dry root (kg/10a)	Bolting (%)
Seedling sown in the previous spring	108.1	43.9	40.6	678	275 ab x)	38.6 a
Seedling sown in the previous autumn	114.3	42.9	37.5	478	179 b	50.9 a
Seedling sown in this spring	126.5	42.5	33.6	852	286 ab	0.7 b
Direct sowing	92.4	36.8	39.8	893	355 a	0.7 b

x) Same letters within a column are not significantly at 1% level by DMRT

Table 3. Medicinal quality of Angelica gigas Nagai according to the period of raising seedling.

Period of raising seedling	Ash (%)	Acid-insoluble Ash (%)	Extract (%)	Decursin (%)
Seedling sown in the previous spring	4.36 b x)	0.32 b	20.00 b	6.50 a
Seedling sown in the previous autumn	5.01 a	0.34 b	23.76 a	5.14 b
Seedling sown in this spring	4.38 b	0.45 a	17.51 b	6.53 a
Direct sowing	4.36 b	0.30 b	23.48 a	6.28 a

x) Same letters within a column are not significantly at 1% level by DMRT

Table 4. Response of bolting and yield of Angelica gigas Nagai according to the treatments of thermal induction.

Treatments	Seeding stand (%)	Bloting (%)	Yield of fresh root (kg/10a)	Yield of dry root (kg/10a)
Control	91.5 a x)	26.7 a	678	262
Low temp.(5℃)	93.3 a	22.4 a	667	246
High temp.(30℃)	72.6 ab	7.4 b	611	219
Low temp./High temp.	77.1 ab	4.0 b	604	230
High temp./Low temp.	62.2 b	4.3 b	544	211

x) Same letters within a column are not significantly at 1% level by DMRT

Table 5. Response of bolting and yield of Angelica gigas Nagai according to the treatments photoperiodic induction.

Treat-ments	Wt. of fresh root (g) (A)	Wt. of dry root (g) (B)	B/A (%)	Yield of fresh root (kg/10a)	Yield of dry root (kg/10a)	Bolting (%)
Control	102.0	39.9	39.1	611	244	31.0 ab x)
Short-day	133.5	55.9	41.9	641	272	37.0 a
Long-day	107.6	46.5	43.3	567	246	18.1 c
Night-break	110.2	42.9	38.9	652	254	20.0 bc

x) Same letters within a column are not significantly at 1% level by DMRT