Physiological Characteristics of Kenaf(*Hibiscus cannabinus* L.) Cultivars in Reclaimed land

*Kangwon National Univ. : Chengwu Jin, S. W. Ryu, Y. S. Jung, M. K. Lee, D. H. Cho
**Korea Atomic Energy Res. Inst. : S. Y. Kang
***Honam Agricultural Research Institute : D. B. Lee

간척지에서 Kenaf 품종의 재배 생리적 특성

*강원대학교 : 김성무, 류승원, 전웅배, 정영상, 이명구, 조동하
**한국원자력연구소 : 강시용
***호남농업연구소 : 이덕배

Objectives

This study investigated the physiological characteristics of four Kenaf(*Hibiscus cannabinus* L.) cultivars(Dowling, Everglade-41, Tainung-2 and Fuhong-952) in reclaimed lands.

Materials and Methods

We sowed the seeds of four Kenaf cultivars (Dowling, Everglade-41, Tainung-2 and Fuhong-952) in a reclaimed land at Gyehwa-myeon, Buan-si, Jollabuk-do at planting density of 20 × 20cm on May 14, 2004. Leaf photosynthetic rates(LPS) were measured with a photosnthesis measuring apparatus stomatal conductance(Gs) adn intercellular CO_2 concentrations(Ci) were also concurrently measured.

Results and Discussion

In photosynthesis of four Kenaf plants, there difference was observed in photosynthetic rate according to cultivar in the reclaimed lands. On the 68 days after sowing(DAS) Tainung-2 showed the highest photosynthetic rate (31.2 μmol $m^{-2}s^{-1}$), and on the 88 DAS Dowling and Tainung-2 showed higher photosynthetic rate (30.1 μmol $m^{-2}s^{-1}$ and 30.6 μmol $m^{-2}s^{-1}$ respectively) than the other two. In the height of Tainung- 2 was significantly taller than the other three cultivars in the early growth stage, but in the late growth stage the height of Tainung-2 became similar to that of Fuhong-952 and the two cultivars were much taller than the other two. The dry matter productions of leaf and stem were 1,020kg/10a and 8.253kg/10a respectively for Tainung-2, much higher than those of the other three cultivars.

---

*Corresponding author TEL: 033-250-6475 E-mail: chodh@kangwon.ac.kr

Table 1. Changes of leaf photosynthetic rate, stomatol condunctance and intercelluar CO_2 concentration of kenaf cultivars in reclaimed land.

Date	Cultivars	A† ($\mu mol\ m^{-2}s^{-1}$)	Gs ($mol\ m^{-2}s^{-1}$)	Ci (ppm)
33 DAS‡	Dowling	27.1±0.46	0.39±0.03	180.42±13.30
	Everglade-41	28.6±0.63	0.49±0.04	194.81±13.47
	Tainung-2	28.9±1.12	0.54±0.04	202.57±0.56
	Fuhong-952	26.3±1.58	0.53±0.01	216.79±9.81
46 DAS	Dowling	28.2±0 15	0.38±0.00	123.14±4.03
	Everglade-41	27.9±0.31	0.42±0.03	142.77±6.44
	Tainung-2	28.2±0.08	0.41±0.04	139.72±10.18
	Fuhong-952	26.5±1.55	0.40±0.03	152.89±9.30
66 DAS	Dowling	30.0±0.93	0.39±0.07	140.41±9.62
	Everglade-41	30.2±1.55	0.29±0.02	115.96±16.00
	Tainung-2	31.2±0.61	0.29±0.01	111.38±7.22
	Fuhong-952	26.2±0.04	0.56±0.06	180.00±7.96
88 DAS	Dowling	30.1±1.57	0.64±0.06	174.72±17.29
	Everglade-41	28.8±0.41	0.45±0.05	172.36±5.18
	Tainung-2	30.6±0.79	0.39±0.03	169.13±13.71
	Fuhong-952	27.2±1.24	0.51±0.07	213.80±21.01

†A; Leaf photosynthetic rate, Gs; Stomatal conductance, Ci; Intercellular CO_2 concentration

‡Days after sowing

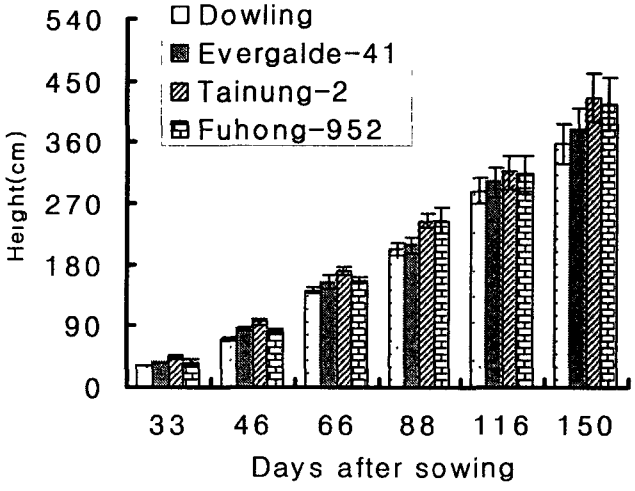

Fig. 1. Changes of height of kenaf cultivars in reclaimed land.