

Analysis of Lignin, Cellulose, and Hemicellulose Contents in *Miscanthus sinensis* Cultivars.

¹College of Life and Environment science, Konkuk University. Seoul 143-701, Korea,

²College of Agriculture and Life science, Kangwon National University, Chuncheon 200-701

Suk-jun Jung¹, Eun-hye Kim¹, Seok-ju Kim¹, Sun-jin Kim¹, Jung-woong Kwon¹, Sung-hyun Song¹, Soo-jung Yong¹, Mi-so Jang¹, Ye-ji Lee¹, Ha-jung Kim¹, Chang-yeon Yu², Hong-keun Song¹, Jong-guk Ahn¹, Ill-min Chung^{1*}

역세 종의 리그닌, 셀룰로오스 그리고 헤미셀룰로오스 함량의 분석

¹건국대학교 생명환경과학대학, ²강원대학교 농업생명과학대학

정석준¹, 김은혜¹, 김석주¹, 김선진¹, 권정웅¹, 송성현¹, 용수정¹, 장미소¹, 이예지¹, 김하정¹, 유창연², 송홍근¹, 안종국¹, 정일민^{1*}

Objectives

Recent studies are focused on producing ethanol from cellulose type crops. Producing bioenergy from plant leaves and stems can be effective if the contents of lignin and cellulose in leaves and stems are found out. In this study, we suggested determining lignin, cellulose, and hemicellulose contents in various *Miscanthus sinensis* cultivars.

Materials and Methods

○ Materials

Samples were classified by collected regions: Dongsan-myeon, Seongsan-eup, Hacheon-ri and Yangpyeong-gun, and their parts: leaf and stem.

○ Methods

Prior to measuring the components, we eliminated the extracts by using soxhlet. After that, lignin contents were measured using modified Klason lignin method. Cellulose contents were measured using modified method that is provided by KS M 7044. For calculating hemicellulose contents, measured contents of lignin and cellulose were subtracted from the weight of extractive-free samples.

Corresponding author : 정일민 E-mail : imcim@konkuk.ac.kr Tel : 02-450-3730

Results and Discussion

The results of this study showed that the major component of extractive-free sample was cellulose. Especially, Yangpyeong-gun leaves and stems yielded a significantly higher contents for cellulose than the other samples. The total of amount of all contents was the highest in Yangpyeong-gun stems. The highest total lignin contents were Yangpyeong-gun stems, either. However, hemicellulose contents from Seongsan-eup stems were higher than that achieved from other samples. Therefore, it was observed that there was no clear correlation among lignin, cellulose, and hemicellulose contents, neither was there between stems and leaves.

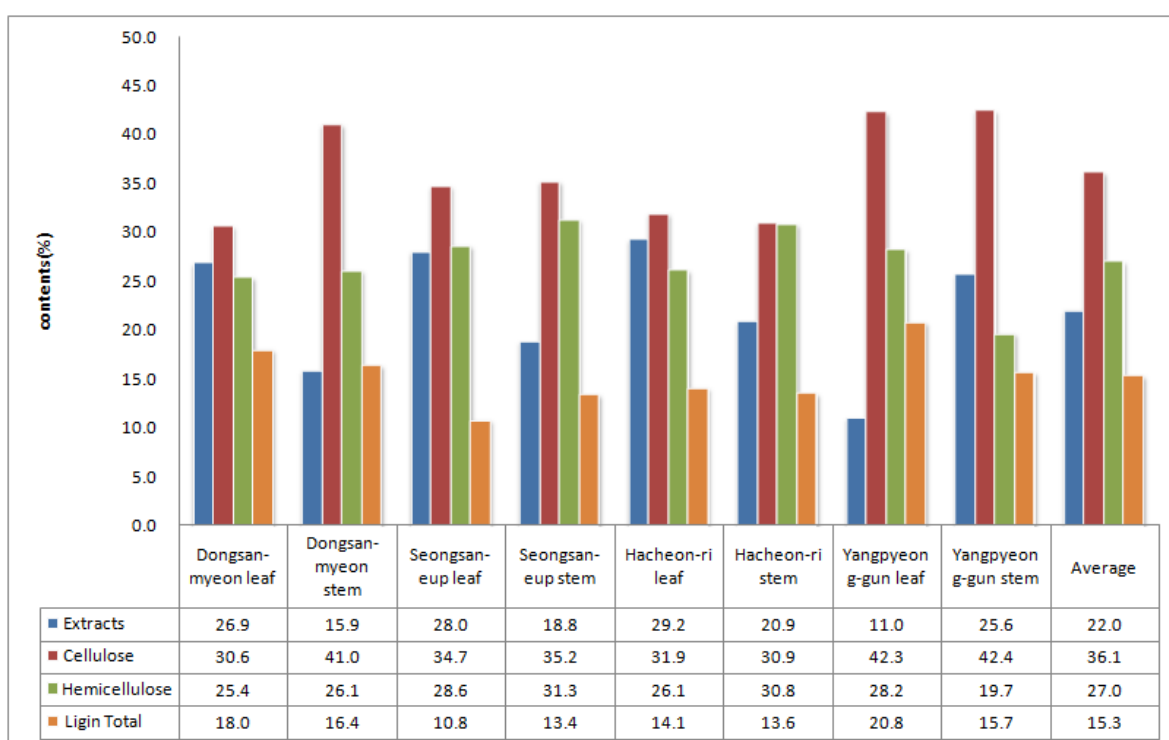


Figure 1. The comparison of lignin, cellulose, and hemicellulose contents in *Miscanthus sinensis* cultivars' leaves and stems. (collected regions : Dongsan-myeon, Seongsan-eup, Hachenon-ri and Yangpyeong-gun.)