

목재부후균 (Wood Rot Fungi)

1. 목재부후균 접종 및 배양
2. 목재부후균을 이용한 난분해성물질 분해-분해율 분석

조교 : 홍창영

■ Incubation

● White rot fungi (백색부후균)

- *Ceriporia* sp. ZLY-2010 (CER) : 1조
- *Stereum hirsutum* (STH) : 2조
- *Fomitopsis insularis* (FOI) :3조

● Medium : Kirk's medium (SSC medium, nitrogen-limited)

- PCB 투여 후, 26°C에서 배양

● Recalcitrant chemical

- Polychlorinated biphenyl (PCB) : Aroclor 1260 10ppm concentration

■ Extraction and Sample preparation

● Homogenizing : 5000 rpm, 20초

● Extraction

- Sample 10mL : hexane 25 mL
= shaking : 250 rpm, 10 min → 3 times
- Sulfuric acid 30mL extraction → D.I. water 60 mL extraction
= shaking : 250 rpm, 1 min → 1 times

● Evaporation

● Sample preparation

- Final volume : 10 mL

■ Biodegradation degradation rate using GC-ECD

● Conditions

- GC-ECD : Electron Capture Detector, 6890N, Agilent Technologies, USA
- Column : DB-5 (60 m, 0.32 mm × 0.25 μm, Agilent Technologies, USA)
- Condition

Nitrogen was used as the carrier gas at a flow rate of 1.5 ml/min, injector temperature was 250 °C in splitless mode, detector temperature was 320 °C, and the oven was heated to 280 °C at a rate of 8 °C/min, increased to 300 °C at 15 °C/min increments, and then finally held for 13 min. Formula of biodegradation rate was as follows:

$$\begin{aligned} & \text{Biodegradation rate of PCBs}(\%) \\ &= \frac{\text{Concentration of sample 1}(\text{ppm}) - \text{Concentration of sample 2}(\text{ppm})}{\text{Concentration of sample 1}(\text{ppm})} \times 100 \end{aligned}$$

■ Report

- GC의 원리, 사용 분야 등 전반적인 것을 조사할 것. GC에 사용되는 detector의 종류 포함. (단, copy & paste로 판단되면 감점. 조사한 자료를 숙독한 후 자신이 이해할 수 있는 만큼 풀어서 서술할 것)
- 본 실험 결과를 다른 조의 분해율과 비교하여 서술할 것

※ 반드시 논문 reference 추가할 것