

新及再生能源技術先期研發- 生產生質柴油真菌之篩選與資源化創新前瞻計畫

執行單位

財團法人食品工業發展研究所

計畫主持人

劉桂郁

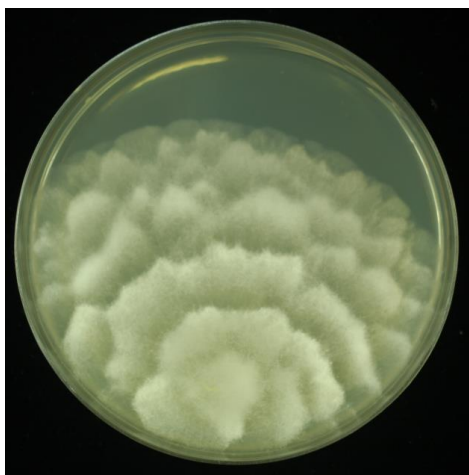
- 建構國內自有多樣化的產油真菌資源庫，產油真菌生長快速，菌體具有做為生質柴油替代料源之潛力，支持國內能源產業研發生物燃料之新興料源。

產油真菌實例

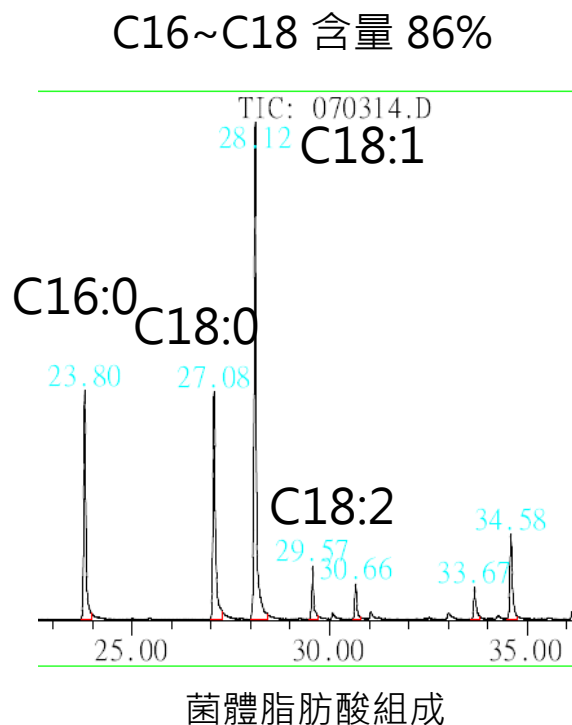
菌株編號：OP013

採樣地點：南投合歡山

菌體總油量：43.2%



菌落形態



產油真菌乾燥菌體
(於100 mL 培養基，
25°C培養 7 天)

- 建構國內自有產油真菌資源庫，其含油量介於27.2~45.2%，菌體主要脂肪酸為棕櫚酸(C16:0)、硬脂酸(C18:0)、油酸(C18:1)與亞麻油酸(C18:2)，適合生產生質柴油料源。
- 產油真菌鑑定為被孢黴 (*Mortierella*)、根黴 (*Rhizopus*)、毛黴 (*Mucor*)以及海生卵菌 (*Halophytophthora*) 等菌屬，皆為重要之產業用菌種。這些菌株生長快速，具應用有機廢棄物之潛力，可望降低生產成本，提昇競爭力。
- 本研究建構之產油真菌資源庫持續公開於BCRC 微生物知識平台，提昇產油真菌之能見度，達成資源永續發展的目標。
(http://classroom.bcrc.firdi.org.tw/home/microbial_wiki/oil_fungi)
- 針對產學研各界之需求，推出產油絲狀真菌客製化整合服務平台，組合產油菌種及資訊提供、產油真菌篩選平台、菌種寄存、生產菌種與污染菌種之學名鑑定等服務，使產油真菌資源與服務得以永續提供。

New and Renewable Energy Technology in Advanced Research and Development--Screening of oleaginous fungi for biodiesel production

Execution Unit

Food Industry Research and Development Institute

Project Director

Guey-Yuh Liou

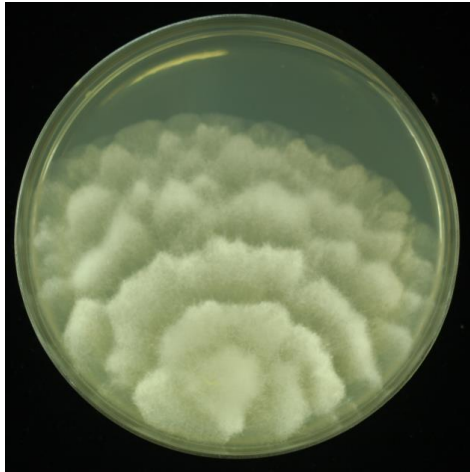
- Oleaginous fungi resources were constructed for an alternative biodiesel feedstock. These fungi grow at a fast rate and have the potential for production of biodiesel feedstock. Native oleaginous fungi support the research of biofuel for energy industry.

An example of oleaginous fungi

Strain No. OP013

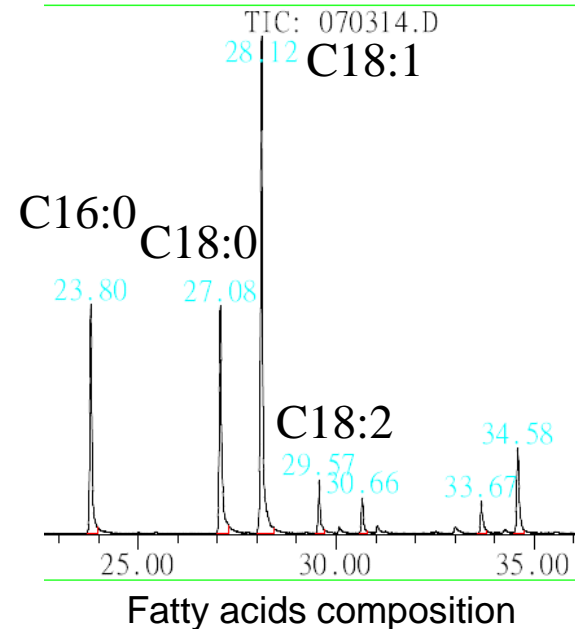
Sample location: Mt. Hehuan, Taiwan

Lipid content: 43.2%



Colony morphology

C16-C18 fatty acid content 86%



Dry biomass of oleaginous fungi (in 100 mL medium at 25°C, 7 days)

- Native oleaginous fungi resources have lipid content in the range of 27.2% to 45.2%. Their main constituents of fatty acids in fungal oil were identified as palmitic acid (C16:0), stearic acid (C18:0), oleic acid (C18:1), and linoleic acid (C18:2). These strains were considered to have the potential for production of biodiesel feedstock.
- Oleaginous fungi screened in this study belong to genera *Mortierella*, *Mucor*, *Rhizopus*, and *Halophytophthora*. These fungi grow at a fast rate and have the potential of utilization of biomass waste.
- Information of oleaginous fungi was opened in BCRC Wiki for sustainable use of resources.
(http://classroom.bcrc.firdi.org.tw/home/microbial_wiki/oil_fungi)
- The combined customized service, including oleaginous fungal resource, screening platform, and microbial identification to species level, was provided.