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# Antimelanogenic effects of *Inula britannica* flower petal extract fermented by *Lactobacillus plantarum* KCCM 11613P

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**Key words:**

*Inula britannica*, flavonoid, *Lactobacillus plantarum*, antioxidant, tyrosinase inhibitor

# Backgrounds

- The major bioactive compounds of *I. britannica* are phenolics.
- *I. britannica* has various bioactive activities such as antihepatitic, anti-inflammatory, antidiabetic, and anticancer effects.
- Fermentation is effective technology for increasing bioactivity of compounds from plants materials.



# Objectives

- To investigate the tyrosinase inhibitory activity by *I. Britannica* extracts fermented by *L. plantarum* KCCM 11613P

# Materials and Methods

**Materials**

- Plant: *Inula britannica*
- Microorganism: *Lactobacillus plantarum* KCCM 11613P

**Methods**

- Extraction: at 60°C for 24 h in water bath
- Fermentation: at 30°C for 72 h

**Evaluation**

- Bioactive compounds:  growth rate, total polyphenols and flavonoids
- Skin-whitening activities (*in vitro*): tyrosinase inhibitory assay
- Skin-whitening activities (in B16F10 cell lines): cellular tyrosinase assay
- Observation by L-DOPA staining with a microscope

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# Results

- The inhibition of tyrosinase activity by fermented sample is 41.74%, but non-fermented sample had not significant effect ($P<0.05$).
- Cellular tyrosinase activity in B16F10 decreased to 86.80% ($P<0.05$).
- Fermented extracts decrease melanin contents in B16F10 by L-DOPA staining methods.



# Conclusion

Fermentation of *I. britannica* extract could be applied to develop the natural skin-whitening agents in cosmetic industry due to its tyrosinase inhibitory activity.