

CHLOROPHYLL A EXTRACTION FROM CHLORELLA VULGARIS



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▶ CONTEXT

This laboratory is working on the development of an efficient maintenance strategy for stream ecosystems. This study focuses on the extraction of Chlorophyll a from *Chlorella vulgaris* and compares two different homogenization methods : the Precellys® bead-beater and a hand-held, Con-Torque Tissue Homogenizer.

▶ MATERIALS

- Precellys® 24-Dual
- Precellys kit : CK28_7mL (ref. KT03961-1-302.7)
- Sample : *Chlorella vulgaris* (bulk)
- Buffer : 5 ml Ammonia Acetone (90%)

▶ PROTOCOL

- Filtration of 100 ml of *Chlorella vulgaris* using a pump for 10 min with a membrane filter paper
- Placed the filtrates into CK28_7ml tubes
- Addition of 5ml Ammonia Acetone to completely dried filtrates
- Incubation for 10 min at 4°C, in a dark container

Grinding step

- Precellys® 24-Dual : 5000 rpm, 2 x 30 sec (5 sec break)

OR

- Grinding with a hand-held tissue homogenizer
- Storage at 4°C in a shaking incubator for 24hrs (to elute Chlorophyll a)

▶ CUSTOMER



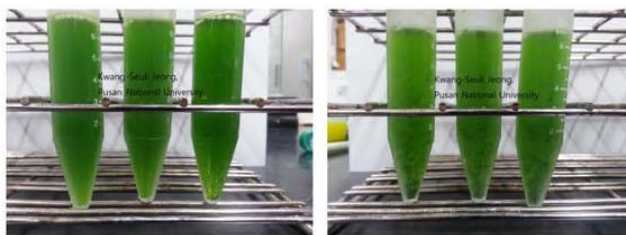
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▶ RESULTS

The total yield of Chlorophyll a extracted is higher with Precellys compared to the manual grinding method (Fig. 1).

Precellys® 24-Dual : 11,500 µg/L (average of triplicate values)

Hand grind method : 7,000 µg/L (average of triplicate values)



Precellys®24-Dual

Hand Grinding

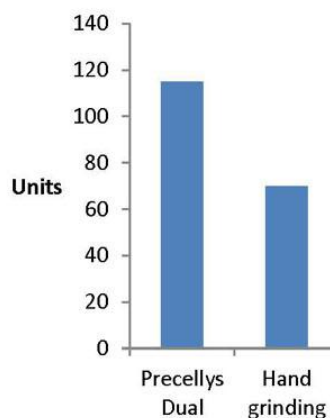


Figure 1 : Comparison of chlorophyll a concentration obtained with two different homogenization methods : the Precellys® 24-Dual and a manual tissue homogenizer



CONCLUSION



The Precellys® 24-Dual successfully extracts Chlorophyll a from *Chlorella vulgaris* and **increases the extraction yield by approximately 35%** compared to the manual grinding method.

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