



DNA EXTRACTION FROM CHLORELLA SOROKINIANA (ALGAE)

/ CONTEXT

Precellys® 24 has been used by Promega internal application lab to extract gDNA from *Chlorella sorokiniana*, before sequencing (NGS).

The efficiency of extraction with Precellys® 24 has been compared to Proteinase K method based on heating treatment. DNA purification was

performed using Promega Maxwell 16 equipment with the LEV Plant DNA kit.

/ MATERIALS

- Precellys® 24 (Bertin Technologies)
- Lysing Kit: VK05_2mL (KT03961-1-004.2)
- Sample: 50 mL of *Chlorella sorokiniana* suspension (overnight culture) / Several initial volumes of culture (2, 4, 5, 6 and 10 mL)
- Promega Maxwell 16 LEV Plant DNA Kit (AS1420)
- Promega Maxwell 16 Instrument (AS3000)
- NanoDrop 2000

/ PROTOCOL

- Centrifugation of each *Chlorella sorokiniana* suspension (2, 4, 5, 6 and 10 mL)
- Resuspension of the pellet in 500µL of TLA Buffer (Promega)
- Precellys® protocol: 6500 rpm, 2 cycles of 20s with 5s of break
- Heating parameters: 60 min / 70°C
- DNA purification with Promega Maxwell 16 LEV Plant DNA Kit and Maxwell 16 Instrument
- Quantification of gDNA by NanoDrop
- Electrophoresis

/ CUSTOMER

Promega

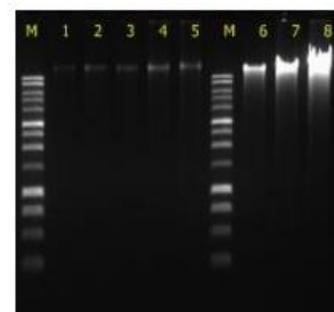
/ CONCLUSION

Compared to traditional sample preparation methods like proteinase K lysis, Precellys® 24 considerably increases the yield of extraction and also the quality of extracted DNA from *Chlorella sorokiniana* suspension.

/ RESULTS

DNA extraction yields obtained with Precellys® 24 or with the Proteinase K method have been evaluated by NanoDrop quantification.

| # | Sample | Condition | NA Conc. (ng/µl) | 260 /280 | 260 /230 | Elution Vol. (µl) | Final Vol. (µl) | Yield (µg) |
|---|---------------|-------------|------------------|----------|----------|-------------------|-----------------|------------|
| 1 | 2 ml culture | Heating | 17,5 | 1,54 | 1,14 | 50 | 40 | 0,70 |
| 2 | 5 ml culture | | 21,4 | 1,56 | 1,15 | 50 | 40 | 0,86 |
| 3 | 5 ml culture | | 20,2 | 1,54 | 1,20 | 50 | 40 | 0,81 |
| 4 | 10 ml culture | | 24,6 | 1,65 | 1,30 | 50 | 40 | 0,98 |
| 5 | 10 ml culture | | 27,0 | 1,60 | 1,28 | 50 | 40 | 1,08 |
| 6 | 2 ml culture | Precellys24 | 32,8 | 1,80 | 1,71 | 50 | 40 | 1,31 |
| 7 | 5 ml culture | Precellys24 | 62,2 | 1,79 | 1,78 | 50 | 40 | 2,49 |
| 8 | 10 ml culture | | 137,1 | 1,80 | 1,88 | 50 | 40 | 5,48 |



| # | Sample | Condition | NA Conc. (ng/µl) | 260 /280 | 260 /230 | Elution Vol. (µl) | Final Vol. (µl) | Yield (µg) |
|---|--------------|-------------|------------------|----------|----------|-------------------|-----------------|------------|
| 1 | 2 ml culture | Heating | 16,0 | 1,54 | 1,00 | 40 | 30 | 0,48 |
| 2 | 4 ml culture | | 25,0 | 1,62 | 1,18 | 40 | 30 | 0,75 |
| 3 | 2 ml culture | Precellys24 | 141,2 | 1,81 | 1,70 | 40 | 30 | 4,24 |
| 4 | 6 ml culture | | 386,4 | 1,82 | 1,32 | 40 | 30 | 11,59 |

High extraction yields are obtained with Precellys® 24 compared to the Proteinase K method. The ratios 260/280 and 260/230 are also very good with Precellys® 24.

Thanks to the Precellys® 24, high quality DNA is extracted from *Chlorella sorokiniana* in high quantity.

PLUS D'INFOS



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