

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

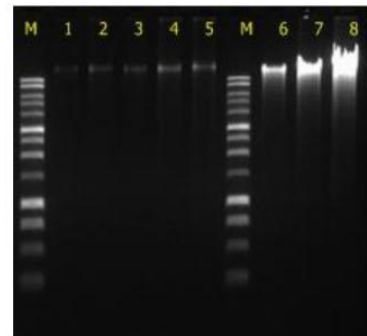


RESULTS

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		62,2	1,79	1,78	50	40	2,49
8	10 ml culture		137,1	1,80	1,88	50	40	5,48

* Electrophoresis (1% Agarose gel)
M: Promega 1kb ladder 2µl
Lane 1~8: 2µl loading



#	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.

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.

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