

ASPERGILLUS SP. CNC-120 GENOMIC DNA PURIFICATION, GROWING NEW FUNGUS, AND ESKAPE PANELS

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Why this groundwork

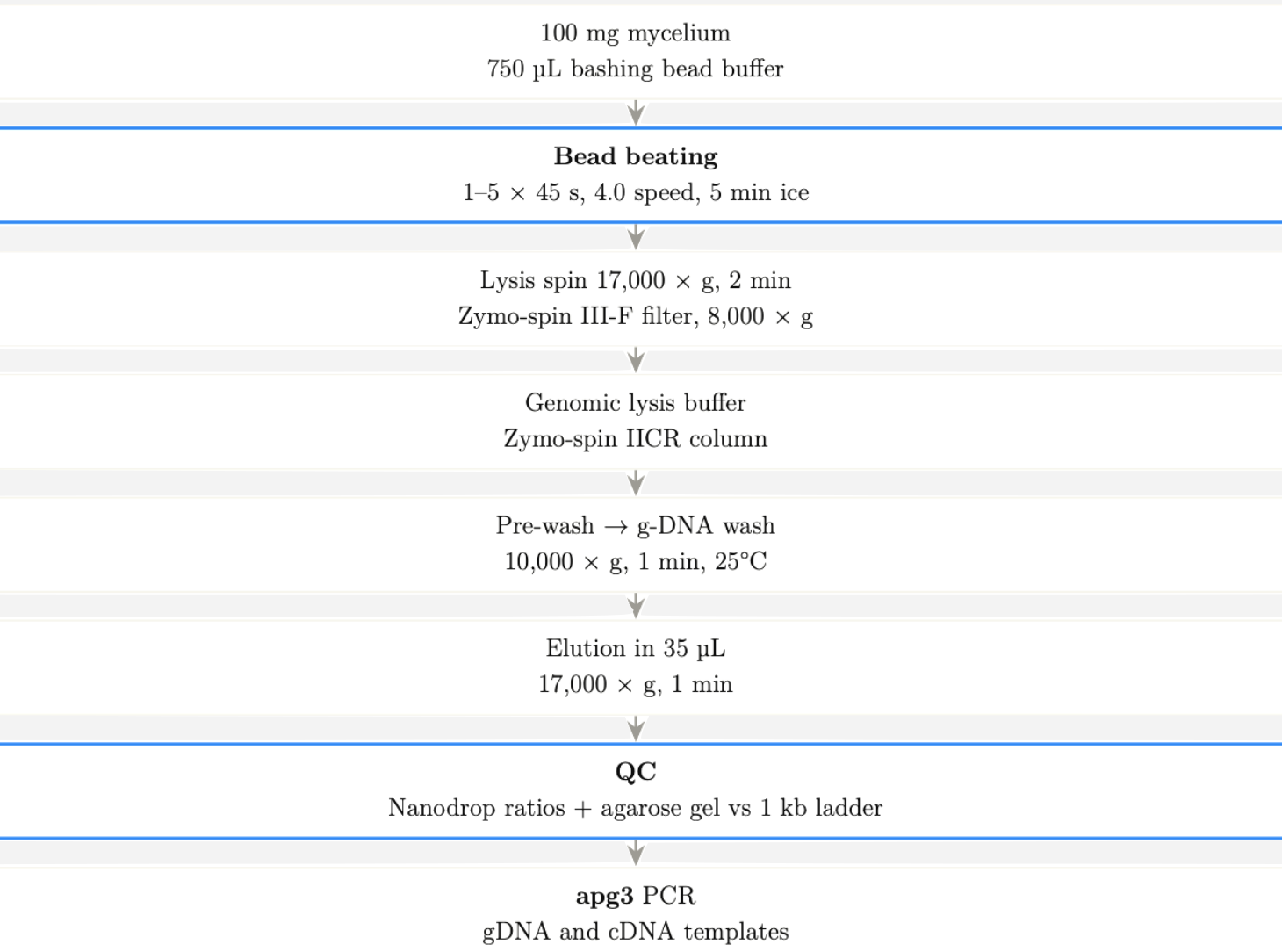
Aspergillus sp. CNC-120 is the organism that produces Aspergillamides A and B. These molecules are built on an indolic enamide scaffold; this uncommon structural motif, combined with their desirable bioactivity, inspired total synthesis campaigns. These campaigns enabled mode-of-action studies that identified 1 and 2 as G2/M cell cycle inhibitors.

This poster explains the process of extracting genomic DNA using the Zymo spin kit and amplifying it using PCR. The objective was to use the sample as a control for RNA amplification, as well as a backup plan in case Aspergillamide could not be produced using the extracted RNA in model organisms.

Objectives

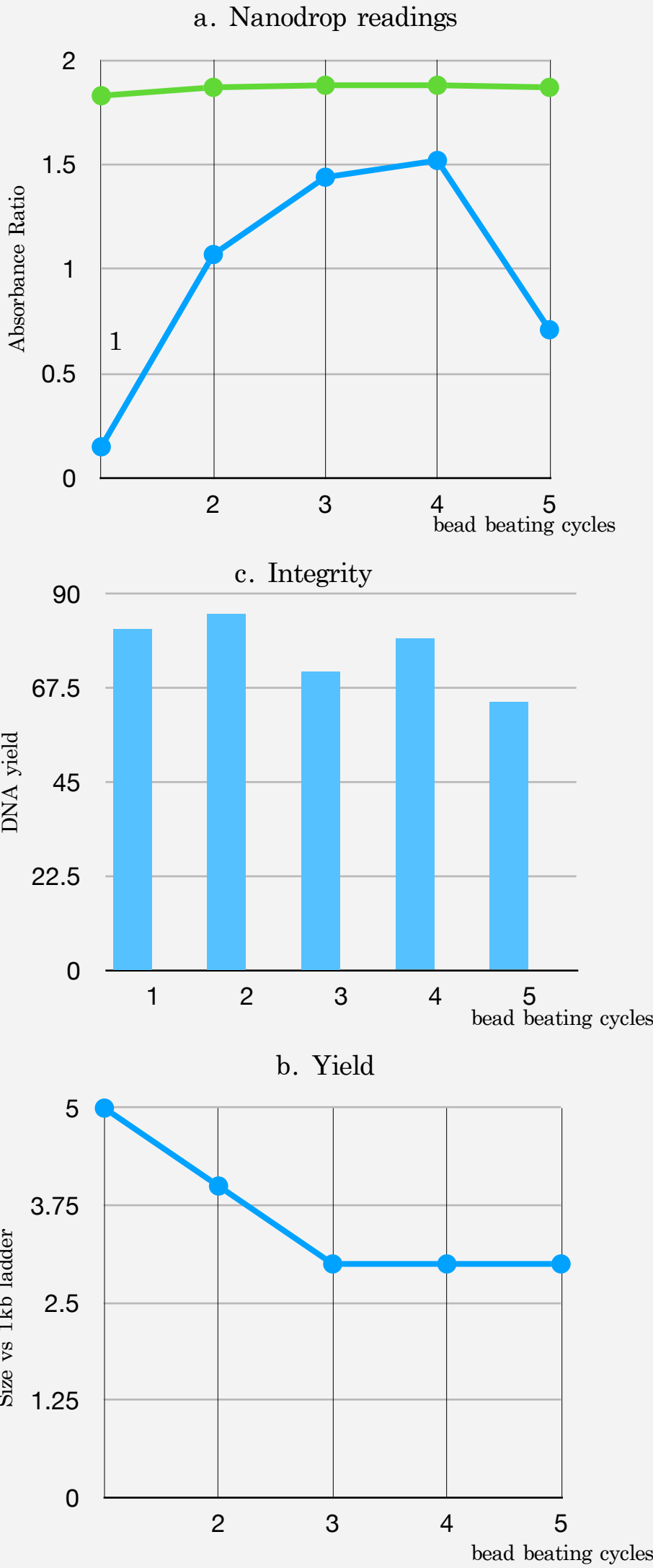
1. Purify genomic DNA that is pure enough for amplification from CNC-120.
 - find optimal bead beating conditions.
 - amplify genomic DNA.
3. Build a gridded colony library to find natural antibiotics.

Extraction workflow



The Zymo spin Bead bashing kit was used in this process

Bead beating data



Four cycles was adopted as the working condition.

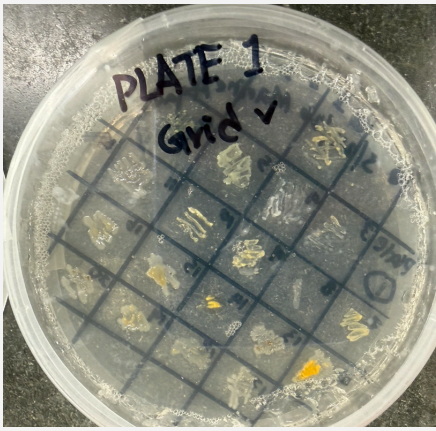
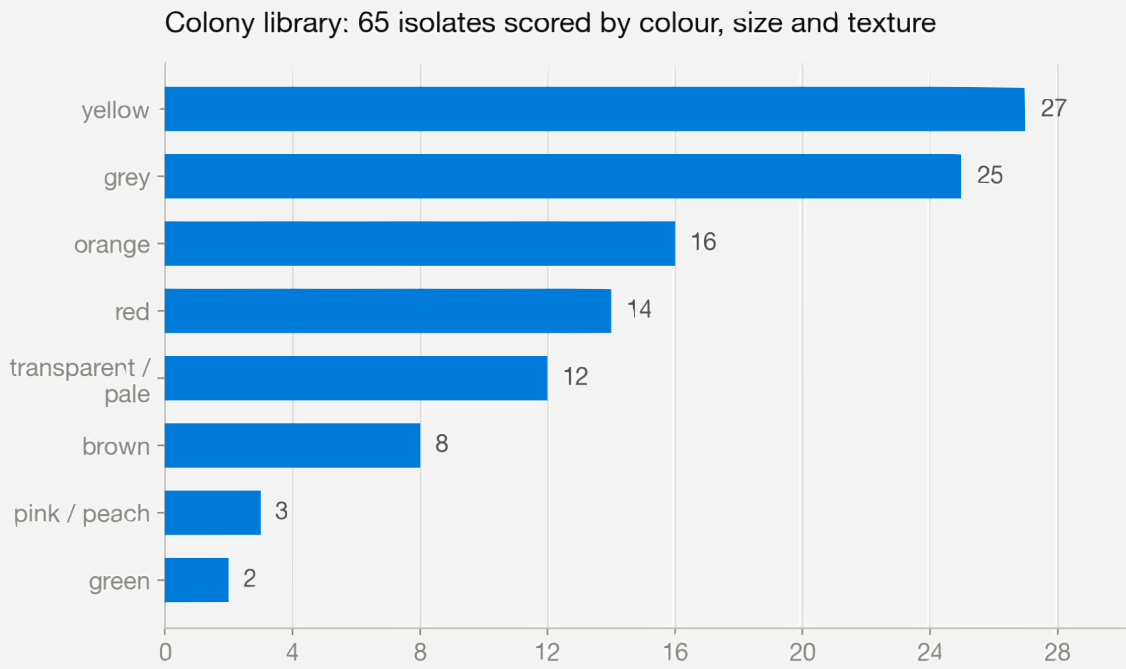
- 260/280 remained flat throughout the cycles while 260/230 peaked at 4 cycles
- Yield stayed flat
- Integrity decreased from 5.0 kb 3.0 kb as cycles increased

Gel documentation



Lanes:
1: sample 1
2: sample 2
3: ladder
4: sample 3
5: sample 4
6: sample 5

Colony library



65 isolates were picked onto gridded master plates 4 – 13, each scored for color, size and texture at the grid position it came from (pp. 25 – 33).

References

1. Vikram, V.S. et al. Uncovering The Genetic Basis for Indolic Enamide Biosynthesis by Marine Fungi
2. Steven, G.T. et al. Aspergillamides A and B: Modified Cytotoxic Tripeptides Produced by a Marine Fungus of the Genus *Aspergillus*.