

Supplementary Materials for the Paper (Article)

# Mechanism of Enhancing Pyrazines in *Daqu* via Inoculating *Bacillus licheniformis* with Strains Specificity

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**Table S1.** Concentration of 2, 3-butanediol (mg/kg) in strains of *B. licheniformis* J-41 and *B. licheniformis* J-49.

Generations	J-41	J-49
2	172.32 ± 10.12	176.31 ± 14.27
3	74.95 ± 3.40	143.88 ± 5.44
4	105.31 ± 2.13	164.61 ± 7.82
5	114.93 ± 27.48	246.93 ± 4.82
6	100.53 ± 5.23	168.37 ± 12.24
7	88.16 ± 8.55	112.28 ± 7.80
8	89.64 ± 6.55	120.51 ± 1.73

**Table S2.** Fatty acid content in cell membrane of *B. licheniformis* J-41 and *B. licheniformis* J-49.

Fatty acid (%)	J-41	J-49
i-C13:0	0.48 ± 0.10	0.40 ± 0.26
i-C14:0	38.87 ± 0.06	33.37 ± 0.16
anteiso-C14:0	25.16 ± 0.18	28.02 ± 0.12
C16:0	6.03 ± 0.05	6.25 ± 0.06
anteiso-C16:0	12.59 ± 0.09	15.02 ± 0.08
C16:1	#NA	0.25 ± 0.05
C17:0	15.86 ± 0.05	16.15 ± 0.10
i-C17:0	1.02 ± 0.01	0.79 ± 0.01
C18:1ω9	#NA	0.19 ± 0.01

Note: #NA means that it is not detected.

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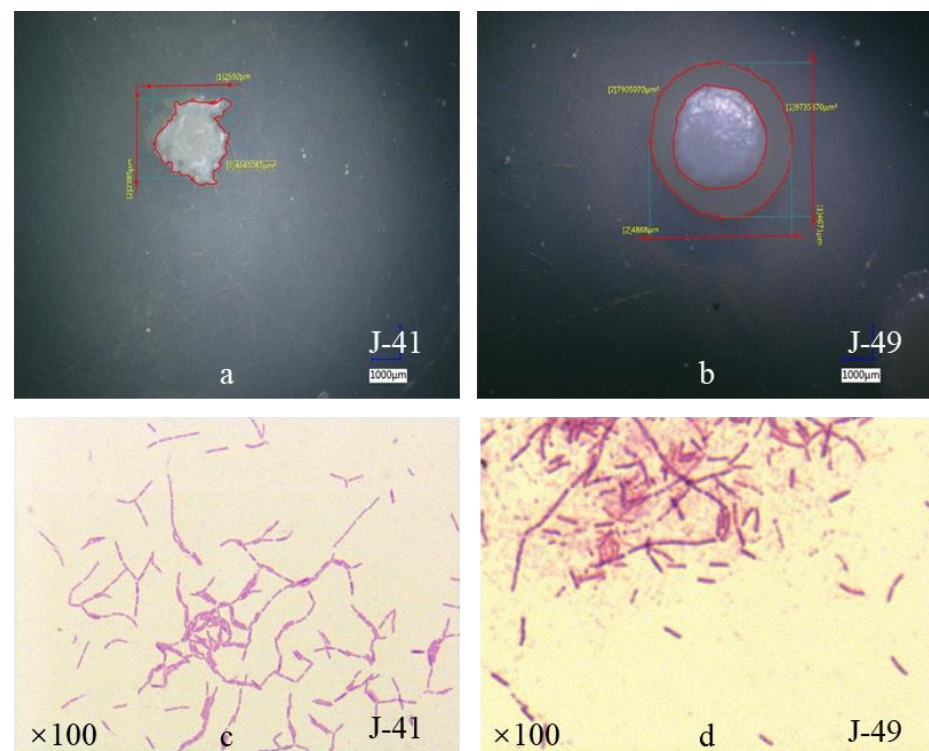
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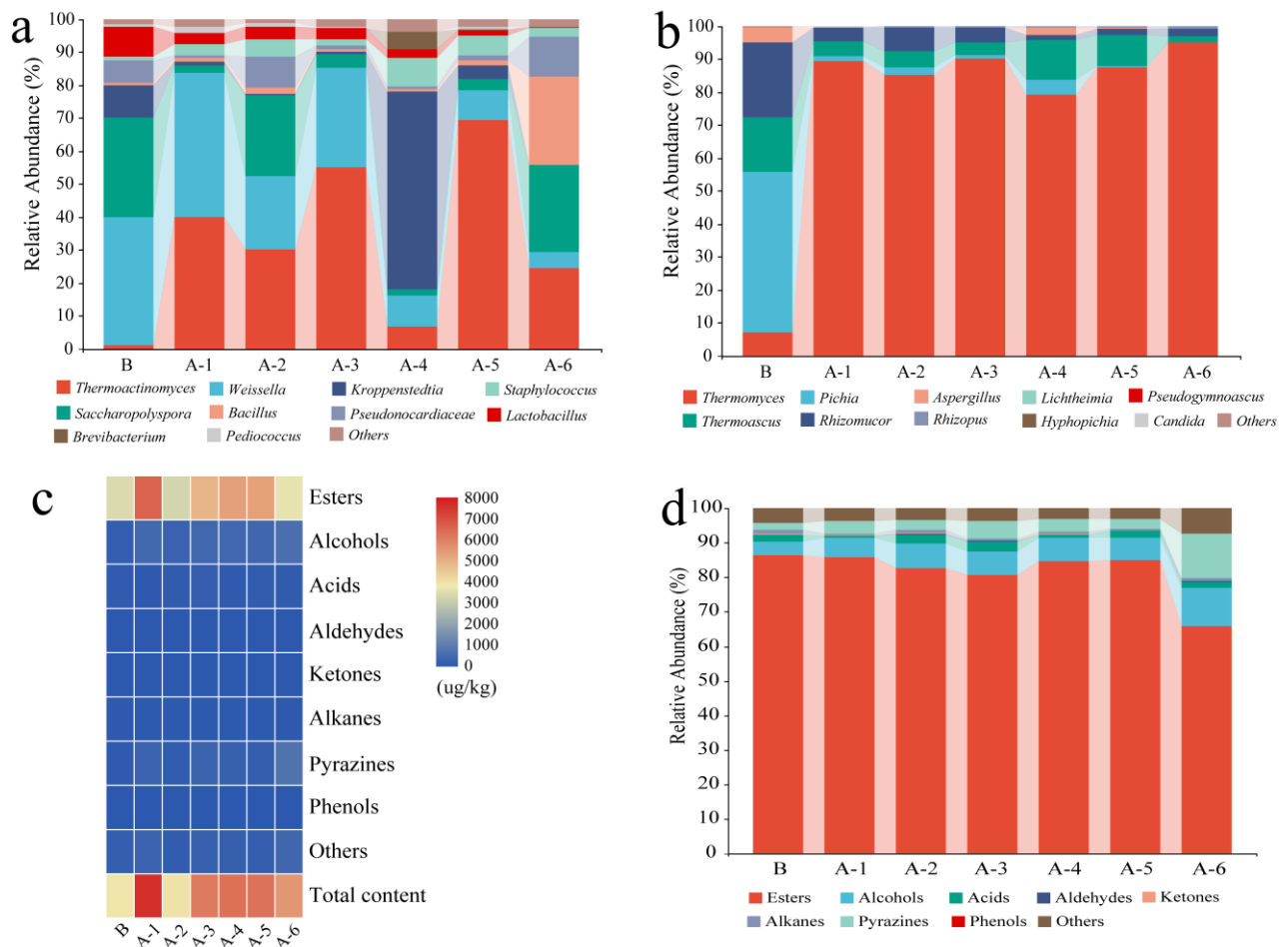
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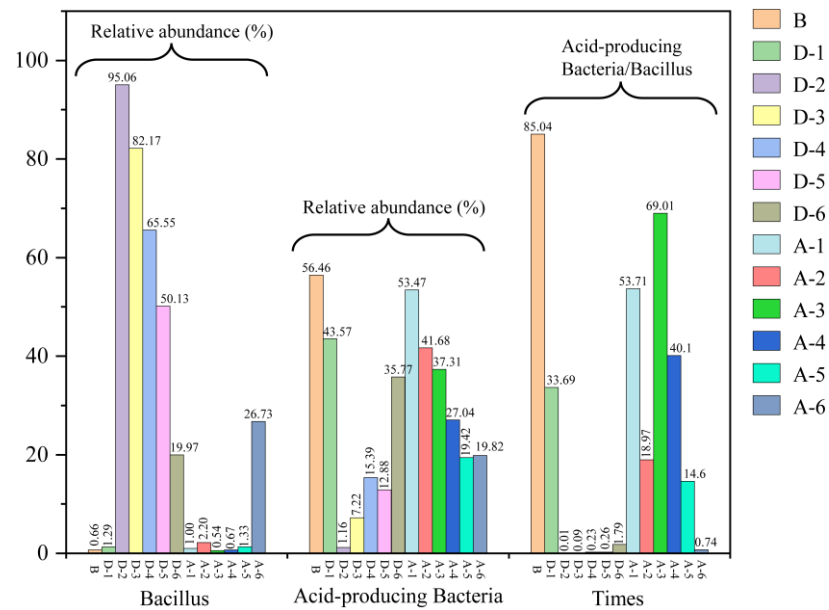
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**Figure S1.** Microscopic graphs of colonies and gram staining of *B. licheniformis* J-41 and *B. licheniformis* J-49.



**Figure S2.** Metabolites of fortified *Daqu* using *B. licheniformis* J-41 (A-1–A-6). *Daqu* (a) bacterial and (b) fungal community composition. Volatile metabolites (c) content and (d) abundance of *Daqu*.



**Figure S3.** Profiles of *Bacillus* and acid-producing bacteria in *Daqu*.