

Changes in Physicochemical Properties, Metabolites and Antioxidant Activity of Edible Grass During Spontaneous Fermentation

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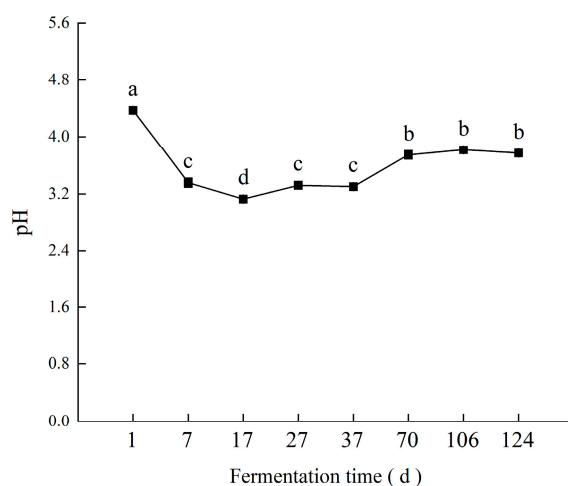
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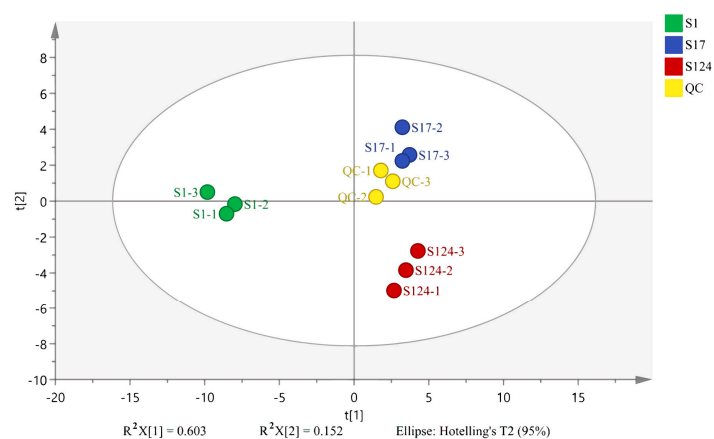
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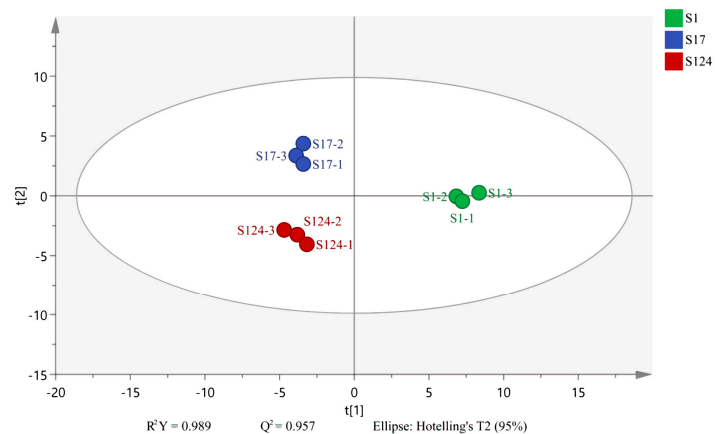
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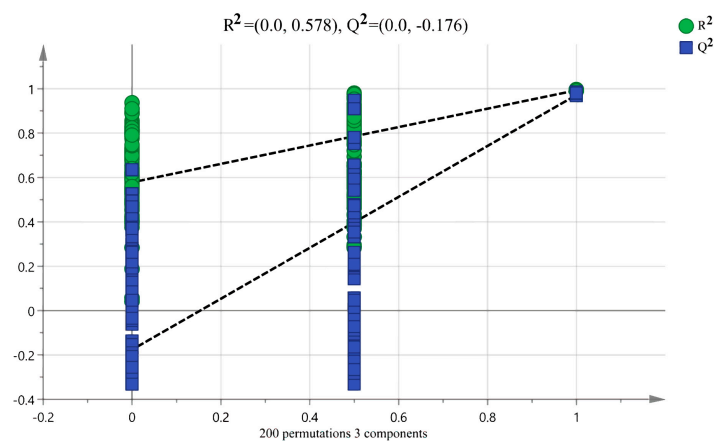
Supplemental Figure S1. Changes in pH during edible grass fermentation. Different superscript letters indicate significant differences ($p < 0.05$).



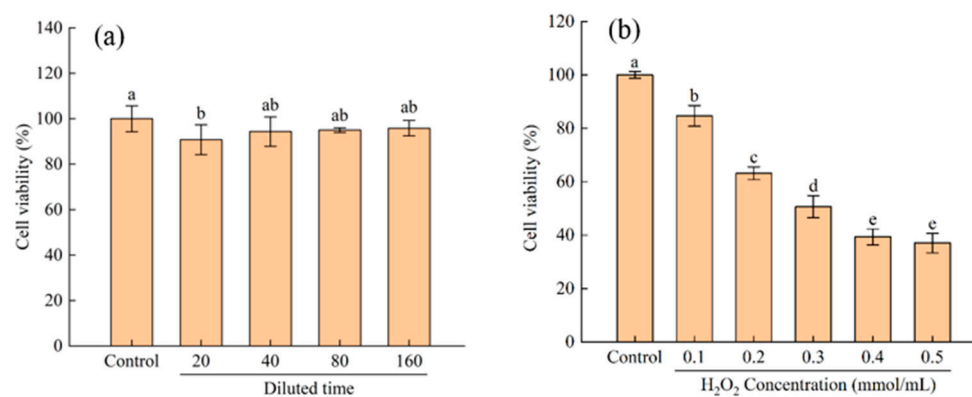
Supplemental Figure S2. PCA score plot based on the GC-MS data of fermented edible grass samples from different fermentation times. S1, S17 and S124 represent the samples on the first day of fermentation, the 17th day of fermentation and the 124th day of fermentation, respectively. QC represents the quality control sample. Each dot represents the replicate of samples in the plot.



Supplemental Figure S3. PLS-DA score plot based on the GC-MS data of fermented edible grass samples from different fermentation times. S1, S17 and S124 represent the samples on the first day of fermentation, the 17th day of fermentation and the 124th day of fermentation, respectively. Each dot represents the replicate of samples in the plot.



Supplemental Figure S4. Response permutation testing based on the GC-MS data of fermented edible grass samples from different fermentation times.



Supplemental Figure S5. The viabilities of HepG2 cells treated with (a) fermented edible grass and (b) H_2O_2 at different concentrations. Different superscript letters in the columns indicate significant differences ($p < 0.05$).

Supplemental Table S1. Identification of metabolites by GC-MS during fermentation.

No.	Class	Metabolite identity	Retention time	Molecular formula
1	Sugar	D-Arabinose	17.728	C ₅ H ₁₀ O ₅
2	Sugar	D-Ribofuranose	18.66	C ₅ H ₁₀ O ₅
3	Sugar	β-Arabinopyranose	19.171	C ₅ H ₁₀ O ₅
4	Sugar	D-Ribose	19.373	C ₅ H ₁₀ O ₅
5	Sugar	D-Lyxose	19.582	C ₅ H ₁₀ O ₅
6	Sugar	D-Xylose	19.817	C ₅ H ₁₀ O ₅
7	Sugar	D-Ribofuranose	21.159	C ₅ H ₁₀ O ₅
8	Sugar	D-Lyxofuranose	21.168	C ₅ H ₁₀ O ₅
9	Sugar	D-Psicofuranose	21.586	C ₆ H ₁₂ O ₆
10	Sugar	D-Fructose(anti)	22.678	C ₆ H ₁₂ O ₆
11	Sugar	D-Fructose(syn)	22.837	C ₆ H ₁₂ O ₆
12	Sugar	D-Mannose	22.946	C ₆ H ₁₂ O ₆
13	Sugar	D-Galactose	22.997	C ₆ H ₁₂ O ₆
14	Sugar	D-Glucose	27.878	C ₆ H ₁₂ O ₆
15	Sugar	Sucrose	30.848	C ₁₂ H ₂₂ O ₁₁
16	Sugar	Palatinose	32.174	C ₁₂ H ₂₂ O ₁₁
17	Sugar	D-Trehalose	32.256	C ₁₂ H ₂₂ O ₁₁
18	Sugar	2-α-Mannobiose	32.274	C ₁₂ H ₂₂ O ₁₁
19	Sugar	β-Gentiobiose	32.543	C ₁₂ H ₂₂ O ₁₁
20	Sugar	Maltose	32.987	C ₁₂ H ₂₂ O ₁₁
21	Organic acid	Lactic Acid	9.734	C ₃ H ₆ O ₃
22	Organic acid	Glycolic acid	9.935	C ₂ H ₄ O ₃
23	Organic acid	Oxalic acid	10.867	C ₂ H ₂ O ₆
24	Organic acid	1,2,4-Benzenetricarboxylic acid	11.84	C ₁₁ H ₁₀ O ₆
25	Organic acid	Butanedioic acid	13.895	C ₄ H ₆ O ₄
26	Organic acid	Gluconic acid	15.531	C ₆ H ₁₂ O ₇

27	Organic acid	D-Citramalic acid	16.596	C ₅ H ₈ O ₅
28	Organic acid	Malic acid	16.839	C ₄ H ₆ O ₅
29	Organic acid	Pentanedioic acid	18.123	C ₅ H ₈ O ₄
30	Organic acid	Arabinonic acid	19.029	C ₅ H ₁₀ O ₆
31	Organic acid	Octanoic acid	20.866	C ₈ H ₁₆ O ₂
32	Organic acid	Acetic acid	26.855	C ₂ H ₄ O ₂
33	Fatty acid	Glyceric acid	14.289	C ₃ H ₆ O ₄
34	Fatty acid	Palmitic Acid	24.163	C ₁₆ H ₃₂ O ₂
35	Fatty acid	Stearic acid	26.344	C ₁₈ H ₃₆ O ₂
36	Amino acid	β-Alanine	16.302	C ₃ H ₇ NO ₂
37	Amino acid	4-Aminobutanoic acid	17.401	C ₄ H ₉ NO ₂
38	Polyol	Propylene glycol	9.172	C ₃ H ₈ O ₂
39	Polyol	Glycerol	13.366	C ₃ H ₈ O ₃
40	Polyol	1,2,3-Butanetriol	13.641	C ₄ H ₁₀ O ₃
41	Polyol	Erythritol	17.25	C ₄ H ₁₀ O ₄
42	Polyol	Xylitol	20.396	C ₅ H ₁₂ O ₅
43	Polyol	D-Sorbitol	23.341	C ₆ H ₁₄ O ₆
44	Polyol	Myo-Inositol	25.018	C ₆ H ₁₂ O ₆
45	Other	2,4-Di-tert-butylphenol	17.091	C ₁₄ H ₂₂ O
46	Other	Glyceryl-glycoside	27.342	C ₉ H ₁₈ O ₈
47	Other	4-Methylthio-N-phenyl-1,2-carb azoledicarboximide	28.768	C ₂₁ H ₁₄ N ₂ O ₂ S
48	Other	1-Monopalmitin	29.917	C ₁₉ H ₃₈ O ₄