

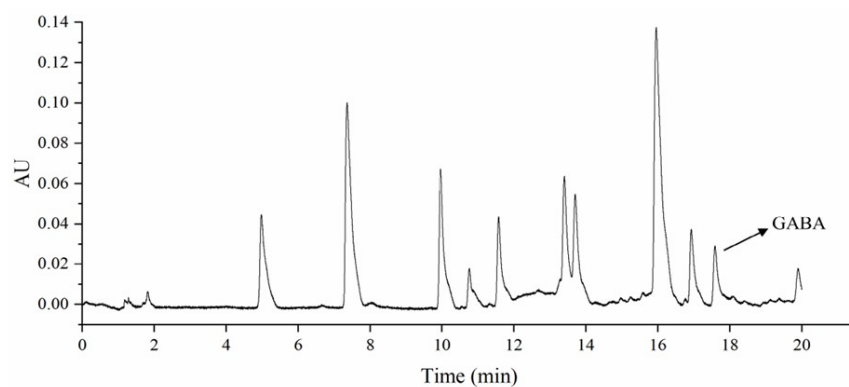


Fig. S1 Peak shape of naturally fermented sour bamboo shoots

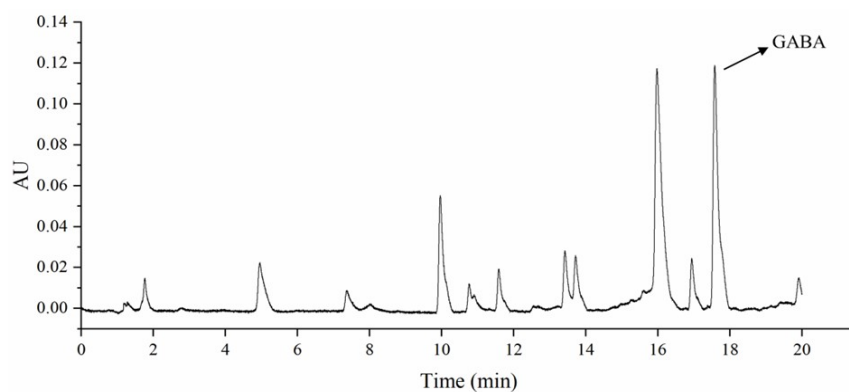


Fig. S2 Peak shape of inoculated fermented sour bamboo shoots level.

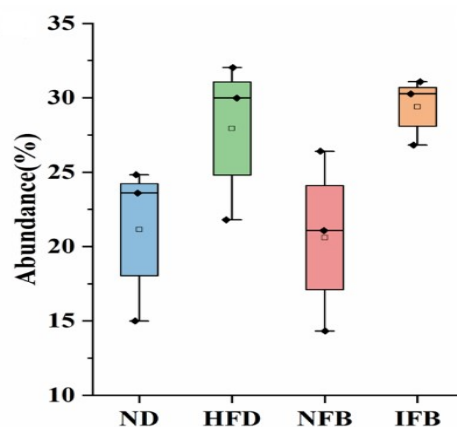


Fig. S3 Abundance analysis of *Lactobacillus* abundance of gut microbiota at the genus level

## Tables

Table S1 Orthogonal Experimental Design for Optimizing Fermentation Conditions of Acidic

Bamboo Shoots

| Level | Factors     |                     |                           |                                   |
|-------|-------------|---------------------|---------------------------|-----------------------------------|
|       | A, Time (d) | B, Temperature (°C) | C, Inoculation amount (%) | D, Inoculation proportion (R1:R2) |
| 1     | 7           | 28                  | 3                         | 1:2                               |
| 2     | 9           | 30                  | 4                         | 1:1                               |
| 3     | 11          | 32                  | 5                         | 2:1                               |

Table S2 The UPLC elution program in the analytical method for GABA determination

| Time /min | Flow phase A /% | Flow phase B /% |
|-----------|-----------------|-----------------|
| 0         | 92              | 8               |
| 12.0      | 50              | 50              |
| 14.0      | 50              | 50              |
| 16.0      | 92              | 8               |

Table S3 Analysis of variance for the orthogonal experimental results of acidic bamboo shoot fermentation conditions

| Factors                | Degree of freedom | Mean square | F- value | P-value |
|------------------------|-------------------|-------------|----------|---------|
| Time                   | 2                 | 5299.64     | 42.75    | < 0.05  |
| temperature            | 2                 | 6112.11     | 49.30    | < 0.05  |
| Inoculation amount     | 2                 | 372.95      | 3.01     | > 0.05  |
| Inoculation proportion | 2                 | 11150.8     | 89.95    | < 0.05  |
| Error                  | 18                | 123.97      |          |         |

Table S4 The table of abbreviations and full name

| Full name                              | Abbreviation                | Full name                            | Abbreviation |
|----------------------------------------|-----------------------------|--------------------------------------|--------------|
| $\gamma$ -aminobutyric acid            | GABA                        | Total cholesterol                    | T-CHO        |
| <i>Lactobacillus plantarum</i> R1      | <i>L. plantarum</i> R1      | High-density lipoprotein cholesterol | HDL-C        |
| <i>Lactobacillus brevis</i> R2         | <i>L. brevis</i> R2         | Low-density lipoprotein cholesterol  | LDL-C        |
| <i>Dendrocalamus latiflorus</i> shoots | <i>D. latiflorus</i> shoots | Total antioxidant capacity           | T-AOC        |
| High-fat diet                          | HFD                         | Total superoxide dismutase           | T-SOD        |
| Normal diet group                      | ND                          | Malondialdehyde                      | MDA          |

|                                         |     |                             |      |
|-----------------------------------------|-----|-----------------------------|------|
| Naturally fermented bamboo shoot group  | NFB | Amplicon sequence variants  | ASVs |
| Inoculated fermented bamboo shoot group | IFB | Operational taxonomic units | OTUs |
| Area under the curve                    | AUC | Firmicutes                  | F    |
| Triglyceride                            | TG  | Bacteroides                 | B    |