*Supplementary Material*

# Pharmacological and Pathological Effect of Mulberry Leaf Extract on the Treatment of Type 1 Diabetes Mellitus Mice

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## Supplementary Tables

Table S1. Statistical analysis of the effects of mulberry leaf aqueous extract on ALP in T1DM mice

| Group | Mean deviation (I-J) | Standard error | Statistical Significance | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Treatment groups( High-dose, Middle-dose, Low-dose) | 82.8000*** | 16.94337 | .000 | 48.8306 | 116.7694 |
| | 42.3000* | 16.94337 | .016 | 8.3306 | 76.2694 |
| | 50.4000** | 16.94337 | .004 | 16.4306 | 84.3694 |
| Metformin group | 32.0000 | 16.94337 | .064 | -1.9694 | 65.9694 |
| Control group | 119.3260*** | 16.94337 | .000 | 85.3566 | 153.2954 |

*$P < 0.05$ , **$P < 0.01$ ,*** P＜0.001*vs* model group

Table S2. Statistical analysis of the effects of mulberry leaf aqueous extract on ALT in T1DM mice

| Group | Mean | Standard | Statistical | 95% Confidence Interval |
|---|---|---|---|---|

| | deviation (I-J) | error | Significance | of the Difference | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Treatment groups( High-dose, Middle-dose, Low-dose) | 56.10000* | 23.41061 | .021 | 8.9486 | 103.2514 |
| | 62.05556* | 23.89335 | .013 | 13.9319 | 110.1792 |
| | 58.00000* | 24.48340 | .022 | 8.6879 | 107.3121 |
| Metformin group | 20.40000 | 23.41061 | .388 | -26.7514 | 67.5514 |
| Control group | 80.25000** | 24.48340 | .002 | 30.9379 | 129.5621 |

* P＜0.05，** P＜0.01*vs* model group(

Table S3. Statistical analysis of the effects of mulberry leaf aqueous extract on AST in T1DM mice

| Group | Mean deviation (I-J) | Standard error | Statistical Significance | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Treatment groups( High-dose, Middle-dose, Low-dose) | 106.03333** | 31.14303 | .001 | 43.3080 | 168.7586 |
| | 89.33333** | 31.78522 | .007 | 25.3146 | 153.3521 |
| | 113.70833** | 32.57016 | .001 | 48.1087 | 179.3080 |
| Metformin group | 69.83333* | 31.14303 | .030 | 7.1080 | 132.5586 |
| Control group | 136.20833*** | 32.57016 | .000 | 70.6087 | 201.8080 |

*P＜0.05，** P＜0.01， *** P＜0.001*vs* model group

Table S4. Statistical analysis of the effects of mulberry leaf aqueous extract on BUN in T1DM mice

| Group | Mean deviation (I-J) | Standard error | Statistical Significance | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Treatment groups( High-dose, Middle-dose, Low-dose) | 9.30767** | 2.89245 | .002 | 3.4820 | 15.1334 |
| | 9.82944** | 2.95209 | .002 | 3.8836 | 15.7753 |
| | 12.98792*** | 3.02499 | .000 | 6.8953 | 19.0806 |
| Metformin group | 11.86167*** | 2.89245 | .000 | 6.0360 | 17.6874 |
| Control group | 16.82042*** | 3.02499 | .000 | 10.7278 | 22.9131 |

*P＜0.05，** P＜0.01， *** P＜0.001*vs* model group

Table S5. Statistical analysis of the effects of mulberry leaf aqueous extract on CHO in T1DM mice

| Group | Mean deviation (I-J) | Standard error | Statistical Significance | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Treatment groups( High-dose, Middle-dose, Low-dose) | 7.47867*** | 1.37165 | .000 | 4.7160 | 10.2413 |
| | 7.50333*** | 1.39993 | .000 | 4.6837 | 10.3229 |
| | 7.96917*** | 1.43451 | .000 | 5.0799 | 10.8584 |
| Metformin group | 7.76367*** | 1.37165 | .000 | 5.0010 | 10.5263 |
| Control group | 8.13667*** | 1.43451 | .000 | 5.2474 | 11.0259 |

*P＜0.05，** P＜0.01， *** P＜0.001*vs* model group

Table S6. Statistical analysis of the effects of mulberry leaf aqueous extract on LDH in T1DM mice

| Group | Mean deviation (I-J) | Standard error | Statistical Significance | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Treatment groups( High-dose, Middle-dose, Low-dose) | 854.96667*** | 204.45670 | .000 | 443.1697 | 1266.7636 |
| | 685.61111** | 208.67274 | .002 | 265.3226 | 1105.8996 |
| | 987.16667*** | 213.82593 | .000 | 556.4991 | 1417.8342 |
| Metformin group | 783.56667*** | 204.45670 | .000 | 371.7697 | 1195.3636 |
| Control group | 683.54167** | 213.82593 | .003 | 252.8741 | 1114.2092 |

*P＜0.05，** P＜0.01， *** P＜0.001*vs* model group

Table S7. Statistical analysis of the effects of mulberry leaf aqueous extract on β-2-GM in T1DM mice

| Group | Mean deviation (I-J) | Standard error | Statistical Significance | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Treatment groups( High-dose, Middle-dose, Low-dose) | 40.6103433*** | 6.1976219 | .000 | 27.915090 | 53.305596 |
| | 43.2125933*** | 6.1976219 | .000 | 30.517340 | 55.907846 |
| | 42.8663600*** | 6.1976219 | .000 | 30.171107 | 55.561613 |

| | | | | | |
|---|---|---|---|---|---|
| Metformin group | 41.4746100*** | 6.1976219 | .000 | 28.779357 | 54.169863 |
| Control group | 36.5227800*** | 6.4732050 | .000 | 23.263021 | 49.782539 |

*P＜0.05，** P＜0.01， *** P＜0.001*vs* model group

Table S8. The biochemical parameters observed in all groups of mice (x±s)

| Group | | Treatment groups | | | Metformin group | Model group | Control group |
|---|---|---|---|---|---|---|---|
| | | High-dose | Middle-dose | Low-dose | | | |
| Fasting blood glucose | 0d | 24.20±3.80 | 25.90±3.40 | 24.00±5.70 | 25.10±3.40 | 24.70±5.50 | 6.10±0.90 |
| | 10d | 21.50±2.40 | 23.40±5.90 | 21.70±3.00 | 20.30±1.80 | 25.60±3.50 | 6.10±0. 90 |
| | 20d | 19.50±4.30 | 21.30±5.80 | 20.90±4.90 | 17.60±1.60 | 25.10±7.00 | 5.50±0. 90 |
| | 30d | 17.10±3.60 | 21.20±3.50 | 20.70±3.40 | 14.30±2.10 | 25.30±4.40 | 5.80±0. 80 |
| | 40d | 15.20±2.20 | 18.10±3.00 | 18.60±3.30 | 12.60±1.80 | 26.20±3.20 | 5.80±1.10 |
| Blood glucose(AUC) | | 52.40±4.50 | 53.60±4.10 | 54.70±3.40 | 45.90±4.70 | 57.90±2.40 | 18.80±4.00 |
| HDL-C | | 3.02±0.67 | 2.75±0.55 | 2.75±0.32 | 3.32±0.78 | 2.14±0.36 | 3.31±0.54 |
| LDL-C | | 0.41±0.06 | 0.42±0.05 | 0.44±0. 10 | 0.41±0.05 | 0.50±0.13 | 0.21±0.03 |
| TG | | 1.85±0.50 | 2.05±0.53 | 2.09±0.36 | 1.74±0.38 | 2.41±0.64 | 1.06±0.32 |
| Ins | | 2.94±0.24 | 2.89 ±0.31 | 2.65±0.27 | 2.00±0.31 | 1.67±0.69 | 3.96 ±0.50 |
| ALP | | 101.40±6.57 | 141.90±12.51 | 133.80±12.03 | 152.20±13.08 | 184.20±16.82 | 64.87±7.92 |
| ALT | | 72.40±6.79 | 66.44±9.20 | 70.50±6.29 | 108.10±17.28 | 128.50±41.80 | 48.25±3.59 |
| AST | | 123.30±13.41 | 140.00±11.53 | 115.63±8.93 | 159.50±26.09 | 229.33±47.26 | 93.13±9.59 |
| BUN | | 14.65±1.81 | 14.13±1.80 | 10.97±1.24 | 12.10±1.64 | 23.96±4.27 | 7.14±0.33 |
| CHO | | 3.46±0.19 | 3.43±0.26 | 2.97±0.13 | 3.17±0.29 | 10.94±3.16 | 2.80±0.11 |
| LDH | | 1190.20±93.96 | 1359.56±93.02 | 1058.00±70.63 | 1261.60±63.11 | 2045.17±280.27 | 1361.63±217.22 |
| β-2-GM | | 25.03±2.35 | 22.43±1.05 | 22.78±2.46 | 24.17±1.17 | 65.65±10.61 | 29.12±3.61 |