SUPPLEMENTARY MATERIAL

New flavonoid glycosides from seeds of *Baccharoides anthelmintica*

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Abstract: *Baccharoides anthelmintica* is the most popular traditional Uighur medicines used for vitiligo. The chemical investigation of the seeds of *B. anthelmintica* led to the isolation of three new flavonoid glycosides (Vernosides A-C). Their structures were determined by comprehensive analysis of spectroscopic data including 1D and 2D NMR and HRMS data. Vernosides A-C were evaluated for their effects on tyrosinase activity. Vernoside B can enhance tyrosinase activity.

Key words: *Baccharoides anthelmintica*; vitiligo; flavonoid glycosides
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Abbreviations

**HMBC:** $^1$H detected heteronuclear multiple-bond correlation

**COSY:** correlated spectroscopy

**HSQC:** $^1$H detected heteronuclear single-quantum coherence
Table S1. $^1$H NMR (500 MHz) and $^{13}$C NMR (125 MHz) data for Compounds 1-3 ($\delta_H$, $\delta_C$ in ppm, $J$ in Hz)

| position | $\delta_H$ | $\delta_C$ | $\delta_H$ | $\delta_C$ | $\delta_H$ | $\delta_C$ |
|----------|------------|------------|------------|------------|------------|------------|
| 2        | 5.12 (dd, 10.5, 3.6) | 74.3 | 5.08 (d, 12.3) | 74.8 | 4.99 (d, 12.1) | 74.2 |
| 3        | 2.08 (m), 2.06 (m) | 39.8 | 2.25 (m) 1.99 (m) | 36.7 | 2.25 (m) 1.96 (m) | 35.5 |
| 4        | 4.68 (dd, 2.4, 2.2) | 64.2 | 4.37 (dd, 5.3, 2.7) | 72.1 | 4.22 (m) | 73.3 |
| 5        | 7.13 (d, 8.5) | 132.4 | 7.06 (d, 8.4) | 132.8 | 7.05 (d, 8.4) | 132.4 |
| 6        | 6.68 (dd, 8.5, 2.5) | 110.3 | 6.65 (dd, 8.4, 2.4) | 110.4 | 6.64 (dd, 8.4, 2.5) | 109.8 |
| 7        | 157.1 | 157.5 | 157.5 | 157.5 | 157.5 | 157.5 |
| 8        | 6.58 (d, 2.5) | 105.4 | 6.62 (d, 2.4) | 105.2 | 6.62 (d, 2.5) | 105.0 |
| 9        | 159.8 | 160.2 | 160.2 | 160.2 | 160.2 | 160.2 |
| 10       | 119.1 | 117.0 | 117.0 | 117.0 | 117.0 | 117.0 |
| 11       | 3.63 (m) 3.69 (m) | 64.6 | 3.41 (s) | 56.1 |
| 12       | 1.24 (t, 7.0) | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 |
| 1′       | 133.4 | 133.5 | 133.6 |
| 2′       | 7.25 (d, 8.5) | 128.8 | 7.25 (d, 8.5) | 128.8 | 6.87 (d, 1.9) | 114.4 |
| 3′       | 6.80 (d, 8.5) | 116.2 | 6.81 (d, 8.5) | 116.2 | 145.7 |
| 4′       | 158.3 | 158.5 | 158.5 | 158.5 | 158.5 | 158.5 |
| 5′       | 6.80 (d, 8.5) | 116.2 | 6.81 (d, 8.5) | 116.2 | 6.80 (d, 8.1) | 115.9 |
| 6′       | 7.25 (d, 8.5) | 128.8 | 7.25 (d, 8.5) | 128.8 | 6.75 (dd, 1.9, 8.1) | 118.8 |
| 1′′      | 5.02 (d, 5.6) | 101.8 | 4.93 (d, 7.3) | 102.0 | 4.91 (d, 6.5) | 101.4 |
| 2′′      | 3.78 (m) | 74.8 | 3.49 (m) | 74.8 | 3.52 (m) | 74.0 |
| 3′′      | 3.51 (m) | 77.8 | 3.41 (m) | 77.8 | 3.40 (m) | 77.2 |
| 4′′      | 3.43 (m) | 72.0 | 3.40 (m) | 72.0 | 3.42 (m) | 74.2 |
| 5′′      | 3.48 (m) | 75.4 | 3.83 (m) | 75.6 | 3.79 (m) | 74.9 |
| 6′′      | 4.64 (m), 4.33 (m) | 65.0 | 4.72 (m) | 65.6 | 4.71 (d, 12.3) | 65.2 |
| 1′′′     | 121.8 | 131.1 | 130.3 |
| 2′′′     | 7.86 (d, 8.7) | 132.9 | 7.99 (d, 7.5) | 130.6 | 7.97 (d, 7.8) | 130.2 |
| 3′′′     | 6.76 (d, 8.7) | 116.3 | 7.28 (t, 7.5) | 129.6 | 7.25 (t, 7.8) | 129.1 |
| 4′′′     | 163.9 | 7.48 (t, 7.5) | 134.2 | 7.47 (t, 7.4) | 133.9 |
| 5′′′     | 6.76 (d, 8.7) | 116.3 | 7.28 (t, 7.5) | 129.6 | 7.25 (t, 7.8) | 129.1 |
| 6′′′     | 7.86 (d, 8.7) | 132.9 | 7.99 (d, 7.5) | 130.6 | 7.97 (d, 7.8) | 130.2 |
| 7′′′     | 168.1 | 167.9 | 167.7 |

$^a$Recorded in CD$_3$OD. $^b$Recorded in CD$_3$OD-CDCl$_3$ (1:1).
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**Percent increase**
Figure S16. IR spectrum of compound 1

Figure S17. HR-ESI-MS spectrum of compound 1
Figure S18. IR spectrum of compound 2

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Figure S20. IR spectrum of compound 3

Figure S21. HR-ESI-MS spectrum of compound 3