**Supplementary Tables and Figures**

**Honeys derived from plants of the coastal sandplains of Western Australia: antibacterial and antioxidant activity, and other characteristics.**

**Kathryn J. Green1,2, Md Khairul Islam1,3, Ivan Lawag1,3, Cornelia Locher1,3, Katherine A. Hammer1,2**

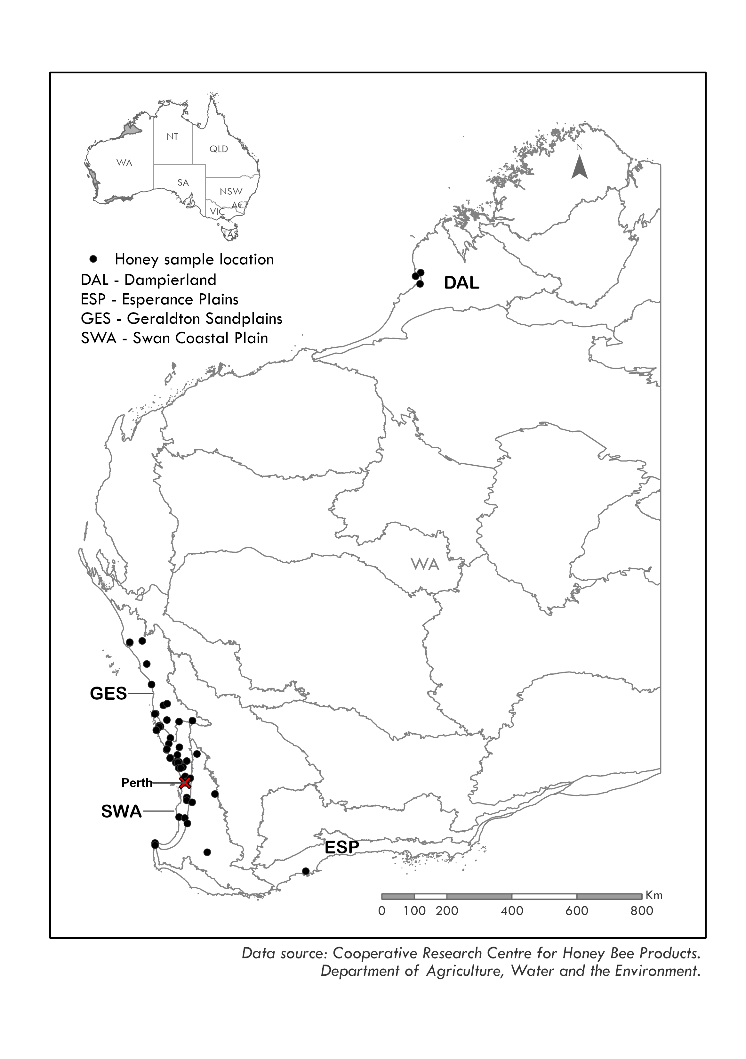
1 Cooperative Research Centre for Honey Bee Products Limited (CRC HBP), The University of Western Australia, Crawley, 6009, Australia

2 School of Biomedical Sciences, The University of Western Australia, Crawley, 6009, Australia

3 Division of Pharmacy, School of Allied Health, The University of Western Australia, Crawley, 6009, Australia

Correspondence: [katherine.hammer@uwa.edu.au](mailto:katherine.hammer@uwa.edu.au)

Supplementary Table 1. Typical HPTLC fingerprinting bands determined for four floral sources.



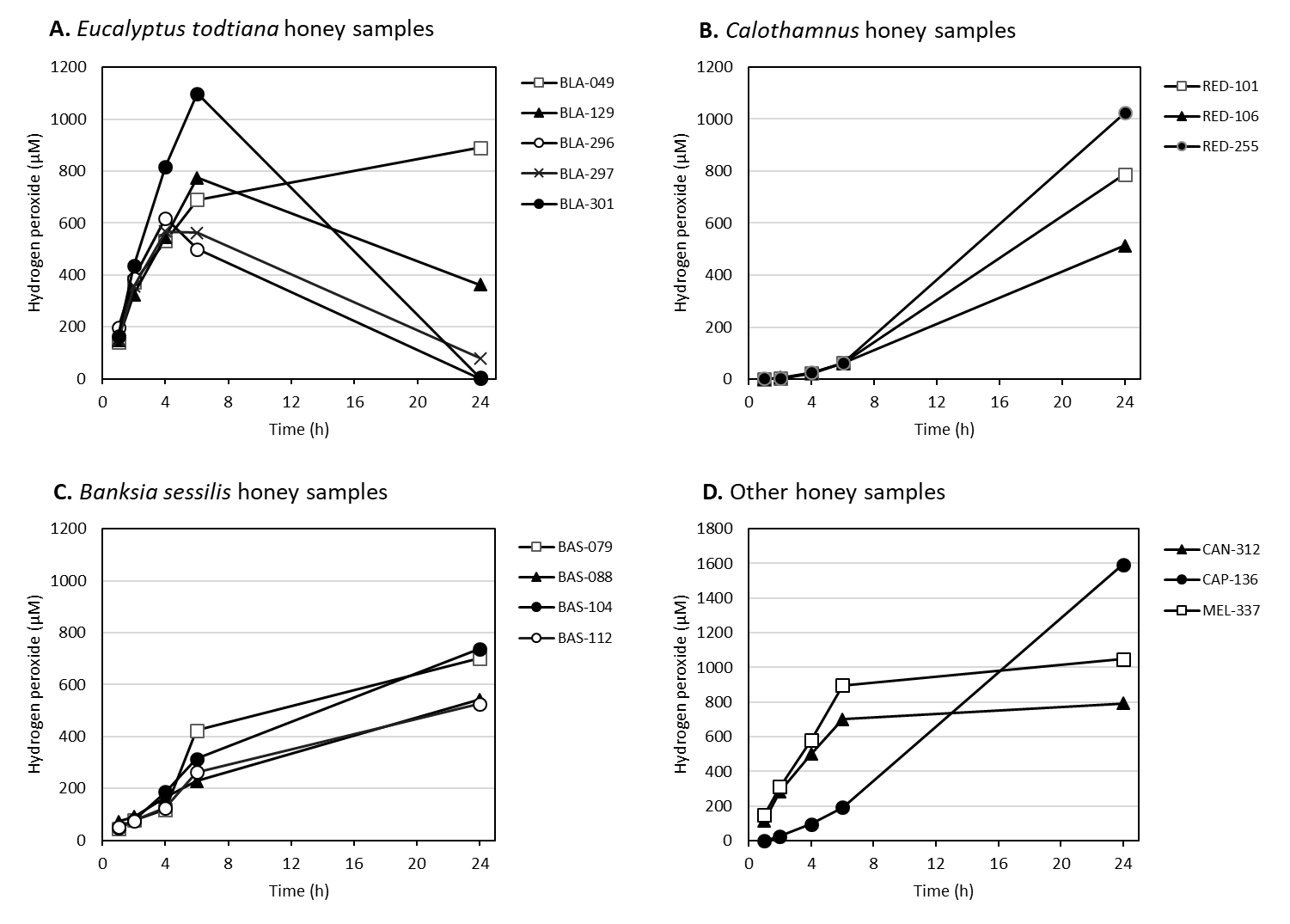
Supplementary Figure 1. Map of Western Australia indicating locations of bee hives within several bioregions.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Floral source | R254 | R366 (developed) | White light | R366 after derivitisation with vanillin |
| *Agonis flexuosa* | 0.22  0.32 (blue)  0.38 (major)  0.53 | **0.11 (yellow)**  **0.32 (bright blue)**  0.42  0.50 | 0.10  0.23 (ash)  0.38 (blue)  0.47 (orange) | 0.22  **0.3 (bright blue)**  **0.37 (brick red)**  **0.49 (bright red)** |
| *Banksia menziesii* | **0.23**  **0.33**  0.40 | 0.23 (light blue)  0.32 (very faint  light blue) | **0.23 (red-brown)**  **0.40 (brown)** | **0.23 (beige)**  **0.40 (brown)**  0.46  0.55 |
| *Banksia sessilis* |  | 0.32 (light blue) | **0.42 (dark blue)**  **0.47 (light blue)** | **0.42 (red-brown)**  0.48 (red)  0.55 |
| *Calothamnus* |  | **0.23 (light blue)\***  0.32 (light blue) | **0.33\***  **0.42 (dark blue)**  **0.47 (light blue)** | 0.31  0.35  **0.42 (light green)\***  **0.48 (brick red)** |

Bold type indicates key identification bands. \*Faint but important band



Supplementary Figure 2: Colour (A) and total phenolics content (B) of selected floral sources.

Supplementary Figure 3. Honey samples (n = 15) producing greater than 500 µM hydrogen peroxide at one or more time points.



Supplementary Figure 4. PCA proportion of variance

Supplementary Table 2. Loadings of PCA. Values greater than 0.5 or less than -0.5 are indicated in bold type.

|  |  |  |
| --- | --- | --- |
| Variable | PC1 | PC2 |
| Mean MIC | -0.377 | **0.722** |
| pH | -0.494 | **-0.604** |
| Refractive Index (nD20) | -0.379 | -0.451 |
| Colour After Filtering | **0.821** | -0.247 |
| Total Phenolics (GA eq.mg /100g) | **0.917** | -0.166 |
| µmol TE/kg at 2 hrs | **0.904** | -0.225 |
| HP 6h | -0.379 | **-0.713** |
| HP 24h | -0.145 | **-0.623** |
| Eigenvalue | 3.027 | 2.126 |
| Percentage variance explained | 37.84% | 26.58% |
| Cumulative proportion of variance | 37.84% | 64.41% |

Supplementary Table 3. Correlation matrix from PCA of 20 variables.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *S. aureus* MIC | *E. coli* MIC | *E. faecalis* MIC | *P. aeruginosa* MIC | Mean MIC | Antibacterial Value | Phenol Equivalence | pH | Refractive Index | Brix | Colour - Filtering | Colour + Filtering | Total Phenolics | Antioxidant (DPPH) | Antioxidant (FRAP) | Hydrogen peroxide 1h | Hydrogen peroxide 2h | Hydrogen peroxide 4h | Hydrogen peroxide 6h | Hydrogen peroxide 24h |
| 1. *S. aureus* MIC | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. *E. coli* MIC | 0.90 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. *E. faecalis* MIC | 0.64 | 0.73 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. *P. aeruginosa* MIC | 0.88 | 0.84 | 0.67 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Mean MIC | 0.96 | 0.96 | 0.78 | 0.93 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Antibacterial Value | -0.92 | -0.90 | -0.75 | -0.94 | -0.96 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Phenol equivalence | -0.74 | -0.78 | -0.68 | -0.75 | -0.80 | 0.79 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. pH | -0.17 | -0.10 | -0.12 | -0.10 | -0.14 | 0.05 | 0.13 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Refractive Index | -0.24 | -0.16 | -0.02 | -0.14 | -0.18 | 0.14 | 0.15 | 0.44 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |
| 1. Brix | -0.24 | -0.17 | -0.03 | -0.15 | -0.18 | 0.14 | 0.15 | 0.44 | 1.00 | 1.00 |  |  |  |  |  |  |  |  |  |  |
| 1. Colour - Filtering | -0.20 | -0.23 | -0.26 | -0.31 | -0.26 | 0.34 | 0.12 | -0.34 | -0.30 | -0.30 | 1.00 |  |  |  |  |  |  |  |  |  |
| 1. Colour + Filtering | -0.33 | -0.34 | -0.31 | -0.43 | -0.38 | 0.43 | 0.16 | -0.14 | -0.18 | -0.18 | 0.91 | 1.00 |  |  |  |  |  |  |  |  |
| 1. Total Phenolics | -0.29 | -0.41 | -0.25 | -0.38 | -0.36 | 0.38 | 0.19 | -0.32 | -0.23 | -0.23 | 0.72 | 0.75 | 1.00 |  |  |  |  |  |  |  |
| 1. Antioxidants (DPPH) | -0.39 | -0.49 | -0.41 | -0.49 | -0.47 | 0.51 | 0.34 | -0.29 | -0.18 | -0.18 | 0.69 | 0.71 | 0.86 | 1.00 |  |  |  |  |  |  |
| 1. Antioxidants (FRAP) | -0.42 | -0.52 | -0.44 | -0.54 | -0.51 | 0.54 | 0.35 | -0.20 | -0.12 | -0.11 | 0.70 | 0.74 | 0.85 | 0.95 | 1.00 |  |  |  |  |  |
| 1. Hydrogen peroxide 1h | -0.35 | -0.27 | -0.32 | -0.31 | -0.34 | 0.30 | 0.51 | 0.48 | 0.19 | 0.19 | -0.35 | -0.26 | -0.40 | -0.32 | -0.29 | 1.00 |  |  |  |  |
| 1. Hydrogen peroxide 2h | -0.34 | -0.28 | -0.40 | -0.33 | -0.36 | 0.32 | 0.51 | 0.44 | 0.15 | 0.15 | -0.27 | -0.19 | -0.33 | -0.27 | -0.25 | 0.92 | 1.00 |  |  |  |
| 1. Hydrogen peroxide 4h | -0.36 | -0.31 | -0.47 | -0.35 | -0.39 | 0.34 | 0.50 | 0.48 | 0.16 | 0.16 | -0.23 | -0.14 | -0.28 | -0.21 | -0.20 | 0.86 | 0.97 | 1.00 |  |  |
| 1. Hydrogen peroxide 6h | -0.35 | -0.31 | -0.42 | -0.31 | -0.37 | 0.31 | 0.45 | 0.49 | 0.19 | 0.19 | -0.24 | -0.15 | -0.25 | -0.20 | -0.20 | 0.78 | 0.91 | 0.96 | 1.00 |  |
| 1. Hydrogen peroxide 24h | -0.21 | -0.21 | -0.12 | -0.16 | -0.20 | 0.13 | 0.15 | 0.29 | 0.16 | 0.16 | -0.02 | -0.01 | 0.03 | -0.02 | 0.00 | 0.18 | 0.25 | 0.31 | 0.44 | 1.00 |