**Table S1.** **Yield obtained from the extraction of stems, flowers and propolis of *E. resinifera* and *E*. *echinus***

|  |  |
| --- | --- |
| Species Samples  |  Extraction yields (%) EtOH extract Water extract |
| *E. resinifera* Flowers |  19.06 ± 0.02 aA 19.00 ± 0.01 aA  |
|  Stems |  9.89 ± 0.07 aB 14.27 ± 0.13 aB |
|  Propolis |  55.00 ± 0.03 aC 2.80 ± 0.19 aC |
| *E.officinarum subsp. echinus* Flowers | 12.79 ± 0.01 bA 17.90 ± 0.16 bA |
|  Stems |  6.43 ± 0.04 bB 6.56 ± 0.04 bB |
|  Propolis |  28.87 ± 0.03bC 14.73 ± 0.15 bC |

Results are means ± standard deviation of three replicates.

*E. Euphorbia resinifera O. Berg; E. echinus: Euphorbia officinarum subsp. echinus (Hook.f. & Coss.) Vindt****.*** Measurements using different solvents; absolute ethanol (EtOH) and Water. Different lower case letters indicate significant differences among the products of the two species (p ≤ 0.05). Upper case letters indicate significant differences among products within the same species (p ≤ 0.05)

### Table S2. Total phenolic contents (TPC), total flavonoid contents (TFC), and total condensed tannin (TCC) of the extraction of stems, flowers, and propolis of *E. resinifera* and *E. echinus*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  Species | Samples |  TPC (mg GAE/g extract) | TFC(mg QE/g extract) | TCC(mg CE/g extract) |
|  **EthOH Water** | **EthOH Water** | **EthOH Water** |
| *E.resinifera*  |  Flowers | 69.70 ± 0.95 aA 41.12 ± 0.24aA |  40.21± 0.21 aA 18.54 ± 0.06aA | 1.81 ± 0.11 aA 1.04 ± 0.00 aA |
|  |  Stems | 20.06 ± 0.03 aB 0.72 ± 0.18 aB |  19.34 ± 0.06 aB 0.14 ± 0.00 aB | 0.46 ± 0.00 aB 0.00 ± 0.00 aB |
|  |  Propolis | 92.28 ± 0.05 aC 148.12 ± 0.14 aC |  42.55 ± 0.11aC 43.42 ± 0.06 aC | 0.00 ± 0.00 aC 7.38 ± 0.19 aC |
| *E.officinarum subsp. echinus*  |  Flowers | 38.77 ± 0.14 bA 25.33 ± 0.20bA |  32.80 ± 0.16 bA 5.21 ± 0.16 bB | 1.75 ± 0.68 aA 0.27 ± 0.00 bA |
|  |  Stems | 11.11 ± 0.03 bB 10.30 ± 0.14 bB |  8.83 ± 0.24 bB 5.95 ± 0.25bB | 0.08 ± 0.00 bB 0.46 ± 0.00 bA  |
|  |  Propolis | 18.99 ± 0.05 bC  23.36 ± 0.05bC |  0.32 ± 0.01 bC 0.00 ± 0.00bA | 0.00 ± 0.00 aB 0.00± 0.00 bA |

Results are means ± standard error of three replicates.

*E. Euphorbia resinifera O. Berg; E. echinus: Euphorbia officinarum subsp. echinus (Hook.f. & Coss.) Vindt*; TPC: Total phenolic content; TFC: Total flavonoid content; TCC: condensed tannin contents.

Different lowercase letters indicate significant differences among the products of the two species (p ≤ 0.05). Upper case letters indicate significant differences among products within the same species (p ≤ 0.05)

### *.*

**Table S3**. **Total phenolic contents (TPC), total flavonoid contents (TFC), total condensed tannin (TCC) of the *E. resinifera* and *E. echinus* honey**

|  |  |  |  |
| --- | --- | --- | --- |
| Species | TPC (mg GAE/100 g) | TFC(mg QE/100 g) | TCC(mg CE/100 g) |
| *E. resinifera* honey  | 22.31 ± 0.07 | 14.4.1 ± 0.01 | 4.39 ± 0.01 |
| *E.officinarum subsp. echinus* honey  | 16.52 ± 0.01 | 4.76 ± 0.00 | 1.53 ± 0.00 |
| *P* value | <0.001 | <0.001 | <0.001 |

Results are means ± standard error of three replicates. *E. Euphorbia resinifera O. Berg; E. echinus: Euphorbia officinarum subsp. echinus (Hook.f. & Coss.) Vindt****;*** TPC: Total phenolic content; TFC: Total flavonoid content; TCC: condensed tannin contents.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  Species | Samples |  DPPH IC50(mg / ml) |  ABTS IC50 (mg /ml)  |  TAC  (mg AA/mg extract)  |  FRAP (mg AA/mg extract) |
| **EthOH Water** |  **EthOH Water** | **EthOH Water** | **EthOH Water** |
| *E.resinifera*  |  Flowers | 0.15 ± 0.00 aA 0.43 ± 0.00 aA |  0.47± 0.00 aA 2.48 ± 0.00 aA | 92.32 ± 0.24 aA 47.47 ± 0.16 aA | 47.29 ± 0.12 aA 27.76 ±0.08 aA |
|  |  Stems | 0.59 ± 0.00 aB 5.03 ± 0.00 aB | 1.64± 0. 00 aB 3.36 ± 0.06 aB | 68.42 ± 0.07 aB 27.55± 0.21 aB | 15.01 ± 0.26 a B 01.83 ± 0.67 aB |
|  |  Propolis | 0.10 ± 0.00 aC 0.07 ± 0.00 aC | 0.39 ± 0.00 aC 0.13 ± 0.00 aC | 95.44 ± 0.71 aC 176.72 ± 0.18 aC | 69.68 ± 0.10 aC 86.45 ± 1.45 aC |
| *E.officinarum subsp. echinus*  |  Flowers | 0.44 ± 0.00 bA 0.92 ± 0.00 bA |  7.81 ± 0.00 bA 2.52 ± 0.04 aA | 69.55 ± 0.12 bA 32.04 ± 1.66 bA | 32.03 ± 0.12 bA 02.21 ± 0.10 bA  |
|  |  Stems | 3.41 ± 0.00 bB 3.72± 0.01 bB | 3.77 ± 0.00 bB 2.66 ± 0.00 bB | 46.55 ± 0.10 bB 38.63 ± 0.07 bB | 00.00 ± 0.00 bB 01.67 ± 0.08 bB  |
|  |  Propolis | 0.98 ± 0.00 bC 0.79 ± 0.00 bC | 1.54 ± 0.00 bC 1.50 ±0.00 bC | 57.21 ± 0.00 bC 55.44 ± 0.07 bC | 09.70 ± 0.09 bC 10.47 ± 0.12 bC  |

**Table S4**. **Antioxidant activity of the extraction of stems, flowers and propolis of *E. resinifera* and *E. echinus***

Results are shown as the mean± standard error (n=3). Different lowercase letters indicate significant differences among the products of the two species (p ≤ 0.05). Upper case letters indicate significant differences among products within the same species (p ≤ 0.05)

*E. Euphorbia resinifera O. Berg; E. echinus: Euphorbia officinarum subsp. echinus (Hook.f. & Coss.) Vindt*; DPPH: (2,2-diphenyl-1-picrylhydrazyl), radical scavenging activity; ABTS: 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid); FRAP: Ferric reducing antioxidant power.

**Table S5. Antioxidant activity of the *E. resinifera* and *E. echinus* honey**

|  |  |  |  |
| --- | --- | --- | --- |
| Species | DPPHIC50 (mg /ml) | ABTSIC50 (mg /ml) |  TAC FRAP (mg CE/100 g) (mg AA/100g) |
| *E. resinifera* honey  | 56.71 ± 0.07 | 137.86 ± 0.54 |  5.69 ± 0.05 4.56 ± 0.01 |
| *E.officinarum subsp. echinus* honey  | 87.31 ± 0.09 | 431. ± 0.76 |  2.99 ± 0.01 1.73 ± 0.06 |
| *P* value | <0.001 | <0.001  |  <0.001 <0.001  |

Results are shown as the mean± standard error (n=3)

*E. Euphorbia resinifera O. Berg; E. echinus: Euphorbia officinarum subsp. echinus (Hook.f. & Coss.) Vindt*; DPPH: (2,2-diphenyl-1-picrylhydrazyl), radical scavenging activity; ABTS: 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid); FRAP: Ferric reducing antioxidant power.

**Table S6.** **Correlation between the phenolic compounds and antioxidant activity of two *Euphorbia* species.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **TAC** | **DPPH** | **ABTS** | **FRAP** |
| ***E. resinifera***  |  |  |  |  |
| Flower**TPC****TFC****TCC**Stems**TPC****TFC****TCC**Propolis**TPC****TFC****TCC*****E. echinus***Flower**TPC****TFC****TCC**Stems**TPC****TFC****TCC**Propolis**TPC****TFC****TCC*****E .resenifera* honey**TPCTFCTCC***E. echinus* honey**TPCTFCTCC | 1,000\*\*1,000\*\*0,959\*\*1,000\*\*1,000\*\*1,000\*\*1,000\*\*0,961\*\*0,998\*\*0,995\*\*0,995\*\*0,992\*\*0,946\*\*0,965\*\*-0,999\*\*-0,995\*\*0,996\*\*-0.5000.0000.5000.500 1,000\*\* 1,000\*\* | -1,000\*\*-1,000\*\*-0,961\*\*-1,000\*\*-1,000\*\*-1,000\*\*-1,000\*\*-0,963\*\*-0,999\*\*-0,999\*\*-1,000\*\*-0,961\*\* -0,939\*\*-0,972\*\*0,997\*\*-0,999\*\*0,999\*\*--1,000\*\*-0.8660.5000.000-0.8660.500 | -1,000\*\*-1,000\*\*-0,960\*\*-1,000\*\*-1,000\*\*-1,000\*\*-1,000\*\*-0,961\*\*-0,999\*\*0,999\*\*1,000\*\*-0,960\*\* 0,939\*\*0,972\*\*-1,000\*\*-0,980\*\*0,984\*\*--0.500-0.8660.5000.8660.0000.000 | 1,000\*\*1,000\*\*0,957\*\*0,994\*\*0,994\*\*0,994\*\*0,985\*\*0,964\*\*0,982\*\*1,000\*\*1,000\*\*0,996\*\*-0,916\*-0,972\*\*0,995\*\*0,943\*\*-0,931\*\*-1,000\*\*0.866-0.5000.0000.8660.866 |

\*\*. Correlation is significant at the 0.01 level

*E. Euphorbia resinifera O. Berg; E. echinus: Euphorbia officinarum subsp. echinus (Hook.f. & Coss.) Vindt*; TPC: Total phenolic content; TFC: Total flavonoid content; TCC: condensed tannin contents. TAC: Total antioxidant capacity; DPPH: (2,2-diphenyl-1-picrylhydrazyl), radical scavenging activity; ABTS: 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid); FRAP: Ferric reducing antioxidant power.