

Supplementary Material

Table S1. Comparative average of fatty acids (FA) content (% of total FA) of pollen preserved with honey and their mixtures with sea buckthorn oil (SBO) and royal jelly (RJ) in a two-year period of storage at +4 °C ($p \leq 0.05$).

Fatty acids	Formula	BPH	BPH +1 % SBO	BPH +1% SBO +2 % RJ	<i>P</i> < .05 value
Lauric	C12:0	0.20	0.14	0.13	0.03
Myristic	C14:0	1.51	0.91	0.94	0.10
Pentadecanoic	C15:0	0.41	0.22	0.23	0.26
Palmitic	C16:0	23.85	19.19	19.30	1.07
Palmitoleic	C16:1n-7	0.74	3.68	3.58	0.38
Stearic	C18:0	2.32	2.51	2.55	0.23
Oleic	C18:1n-9 <i>cis</i>	6.26	8.46	8.34	0.83
Vaccenic	C18:1n-7	1.62	1.85	1.92	0.16
Linolelaidic	C18:2n6 <i>trans</i>	0.81	0.68	0.70	0.45
Linoleic	C18:2n-6 <i>cis</i>	10.48	28.78	27.99	2.06
γ -Linoleic	C18:3n-6	1.16	0.99	0.96	0.24
α -Linolenic	C18:3n-3	42.31	26.52	27.41	0.83
Arachidic	C20:0	0.64	0.56	0.54	0.10
Eicosenoic	C20:1n-9	0.15	0.16	0.15	0.06
Eicosadienoic	C20:2n-6	0.19	0.15	0.17	0.05
Eicosatrienoic	C20:3n-3	0.41	0.24	0.25	0.07
Arachidonic	C20:4n-6	0.61	0.16	0.13	0.57
Behenic	C22:0	0.35	0.45	0.46	0.04
Docosadienoic	C22:2n-6	0.31	0.15	0.11	0.29
Docosatetraenoic	C22:4n-6	0.23	0.21	0.22	0.12

Lignoceric	C24:0	0.31	0.23	0.26	0.07
Nervonic	C24:1n-9	0.43	0.30	0.28	0.08

Note: Saturated fatty acids (SFA): C12:0; C14:0; C15:0; C16:0; C18:0; C20:0; C22:0; C24:0

Unsaturated fatty acids (USFA): n-3; n-6; n-7; n-9; C24:1

n-3: C18:3n3; C20:5n3 and n-6: C18:2n6*trans*; C18:2n6*cis*; C18:3n6; C20:2n6; C20:4n6;

C22:2n6; C22:4n6

n-7: C16:1n7; C18:1n7 and n-9: C18:1n9*cis*; C20:1n9; C24:1n9

The bee products used in the study included pollen mixed with honey in ratio 1:2 g/g represented as BPH, pollen mixed with honey in ratio 1:2+1 % (w/w) SBO indicated as BPH+1 % (w/w) SBO), pollen mixed with honey in ratio 1:2+1 % (w/w) SBO+2 % RJ indicated as BPH+1% (w/w) SBO+2 % (w/w) RJ)

Table S2. Relationship of fatty acids (% of total FA) between bee pollen and honey mixture with pollen during a two-year period of storage at +4 °C ($p \leq 0.05$).

Fatty acids	Formula	AVG ±SE of FA		(r)	Variation limits of FA Min/ Max, (%)		CV (%) for BP and BPH
		BP	BPH		BP	BPH	
Lauric	C12:0	<u>0.32</u> 0.07	<u>0.20</u> 0.01	0.76	<u>0.21</u> 0.53	<u>0.16</u> 0.23	<u>44.7</u> 14.7
Myristic	C14:0	<u>1.53</u> 0.12	<u>1.51</u> 0.09	0.82	<u>1.20</u> 1.75	<u>1.28</u> 1.72	<u>15.5</u> 11.9
Pentadecanoic	C15:0	<u>0.57</u> 0.16	<u>0.41</u> 0.21	0.78	<u>0.12</u> 0.88	<u>0.09</u> 0.96	<u>56.4</u> 1013
Palmitic	C16:0	<u>23.31</u> 0.52	<u>23.85</u> 0.33	-0.36	<u>21.91</u> 24.31	<u>22.88</u> 24.39	<u>4.43</u> 2.78
Palmitoleic	C16:1n-7	<u>0.18</u> 0.01	<u>0.74</u> 0.47	0.99	<u>0.16</u> 0.22	<u>0.19</u> 2.16	<u>15.05</u> 127.6
Stearic	C18:0	<u>1.97</u> 0.16	<u>2.32</u> 0.10	-0.28	<u>1.68</u> 2.36	<u>2.14</u> 2.56	<u>16.36</u> 8.82
Oleic	C18:1n-9 <i>cis</i>	<u>6.36</u> 0.66	<u>6.26</u> 0.51	0.39	<u>4.85</u> 7.94	<u>5.03</u> 7.45	<u>20.69</u> 16.16
Vaccenic	C18:1n-7	<u>1.56</u> 0.19	<u>1.62</u> 0.24	0.88	<u>1.22</u> 2.04	<u>1.27</u> 2.34	<u>23.77</u> 30.14
Linolelaidic	C18:2n-6 <i>trans</i>	<u>1.04</u> 0.42	<u>0.81</u> 0.33	0.93	<u>0.19</u> 2.10	<u>0.15</u> 1.50	<u>80.31</u> 82.05
Linoleic	C18:2n-6 <i>cis</i>	<u>9.77</u> 0.19	<u>10.48</u> 0.34	-0.47	<u>9.40</u> 10.16	<u>9.76</u> 11.32	<u>3.95</u> 6.43
γ-Linoleic	C18:3n-6	0.80 0.55	1.16 0.55	0.59	0.21 2.45	0.18 2.11	136.9 94.10
α-Linolenic	C18:3n-3	<u>41.36</u> 1.26	<u>42.31</u> 0.72	-0.59	<u>38.59</u> 43.94	<u>40.24</u> 43.57	<u>6.11</u> 3.42
Arachidic	C20:0	<u>0.75</u> 0.05	<u>0.64</u> 0.06	0.98	<u>0.65</u> 0.88	<u>0.54</u> 0.77	<u>13.35</u> 17.26
Eicosenoic	C20:1n-9	<u>1.13</u> 0.58	<u>0.15</u> 0.01	-0.48	<u>0.17</u> 2.58	<u>0.12</u> 0.18	<u>102.1</u> 16.69
Eicosadienoic	C20:2n-6	0.22 0.02	0.19 0.03	0.27	0.17 0.28	0.12 0.23	20.23 26.14
Eicosatrienoic	C20:3n-3	<u>0.65</u> 0.13	<u>0.41</u> 0.04	0.94	<u>0.28</u> 0.90	<u>0.31</u> 0.51	<u>40.95</u> 20.01
Arachidonic	C20:4n-6	<u>0.49</u> 0.12	<u>0.61</u> 0.39	0.99	<u>0.35</u> 0.74	<u>0.18</u> 1.40	<u>43.49</u> 111.3
Behenic	C22:0	<u>0.44</u> 0.07	<u>0.35</u> 0.02	0.98	<u>0.32</u> 0.62	<u>0.32</u> 0.40	<u>31.72</u> 9.62
Docosadienoic	C22:2n-6	<u>0.38</u> 0.13	<u>0.31</u> 0.02	0.99	<u>0.24</u> 0.67	<u>0.29</u> 0.32	<u>51.67</u> 6.96
Docosatetraenoic	C22:4n-6	<u>0.28</u> 0.28	<u>0.23</u> 0.23	0.43	<u>0.18</u> 0.18	<u>0.14</u> 0.14	<u>26.64</u> 26.64

		0.04	0.06		0.35	0.39	51.38
		<u>0.23</u>	<u>0.31</u>		<u>0.09</u>	<u>0.25</u>	<u>47.69</u>
Lignoceric	C24:0	0.06	0.02	0.90	0.33	0.36	14.87
		<u>0.35</u>	<u>0.43</u>		<u>0.25</u>	<u>0.35</u>	<u>23.68</u>
Nervonic	C24:1n-9	0.04	0.04	0.31	0.44	0.51	16.22

Note: Saturated fatty acids (SFA): C12:0; C14:0; C15:0; C16:0; C18:0; C20:0; C22:0; C24:0

Unsaturated fatty acids (USFA): n-3; n-6; n-7; n-9; C24:1

n-3: C18:3n3; C20:3n3 and n-6: C18:2n6*trans*; C18:2n6*cis*; C18:3n6; C20:2n6; C20:4n6;

C22:2n6; C22:4n6

n-7: C16:1n7; C18:1n7 and n-9: C18:1n9*cis*; C20:1n9; C24:1n9

CV – coefficient of variation and SE – standard error

The bee products used in the study included pollen mixed with honey in ratio 1:2 g/g

represented as BPH