

Table S1. The honey samples, and their labels and localities used for analysis.

No.	Entomological label	Locality	Co-ordination	Name	Provider
1	<i>A. cerana</i>	Thailand, Chiang Mai	18.94°N, 99.36°E	CThai1	Beekeeper
2	<i>A. cerana</i>	Thailand, Chantaburi	12.66°N, 101.92°E	CThai2	Beekeeper
3	<i>A. cerana</i>	Thailand, Phayao	19.33°N, 99.92°E	CThai3	Beekeeper
4	<i>A. cerana</i>	Thailand, Chiang Rai	19.68°N, 99.35°E	CThai4	Beekeeper
5	<i>A. cerana</i>	Thailand, Patthalung	7.80°N, 100.01°E	CThai5	Beekeeper
6	<i>A. cerana</i>	Nepal, Pokhara	28.20°N, 83.98°E	CNep1	Beekeeper
7	<i>A. cerana</i>	Nepal, Pokhara	28.20°N, 83.58°E	CNep2	Beekeeper
8	<i>A. cerana</i>	South Korea	36.40°N, 128.49°E	CSK1	Beekeeper
9	<i>A. cerana</i>	South Korea	36.40°N, 128.49°E	CSK2	Beekeeper
10	<i>A. cerana</i>	South Korea	36.32°N, 128.48°E	CSK3	Beekeeper
11	<i>A. dorsata</i>	Thailand, Nakorn Sawan1	15.59°N, 100.43°E	DThai1	Honey hunter
12	<i>A. dorsata</i>	Thailand, Nakorn Sawan2	15.59°N, 100.43°E	DThai2	Honey hunter
13	<i>A. dorsata</i>	Thailand, Phetchaburi	12.95°N, 99.66°E	DThai3	Honey hunter
14	<i>A. dorsata</i>	Thailand, Chiang Mai	18.73°N, 98.94°E	DThai4	Honey hunter
15	<i>A. dorsata</i>	Thailand, Tak	17.05°N, 99.12°E	DThai5	Honey hunter
16	<i>A. mellifera</i>	South Korea	36.40°N, 128.49°E	MSK1	Beekeeper
17	<i>A. mellifera</i>	South Korea	36.40°N, 128.49°E	MSK2	Beekeeper
18	<i>A. mellifera</i>	South Korea	35.31°N, 127.59°E	MSK3	Beekeeper
19	<i>A. mellifera</i>	South Korea	36.32°N, 128.48°E	MSK4	Beekeeper
20	<i>A. mellifera</i>	South Korea	36.32°N, 128.48°E	MSK5	Beekeeper

Table S2. Mitochondrial sequences of honeybees (*A. cerana*, *A. dorsata* and *A. mellifera*) used to design species-specific primers.

No.	Sample ID number	Locality	GenBank accession no.	Reference
1	<i>Apis cerana</i>	China	KM244704	[55]
2	<i>Apis cerana</i>	China, Yunnan	GQ162109	[55]
3	<i>Apis cerana</i>	South Korea	KX908206	[56]
4	<i>Apis cerana</i>	South Korea	AP018431	[48]
5	<i>Apis cerana</i>	Malaysia	AP018149	[51]
6	<i>Apis cerana</i>	Japan, Nagasaki, Tsushima Island	AP017985	[52]
7	<i>Apis cerana</i>	Taiwan, Taipei	AP017984	[52]
8	<i>Apis cerana</i>	China, Jiangsu	AP017983	[52]
9	<i>Apis cerana</i>	Japan, Amami Oshima Island	AP017941	[52]
10	<i>Apis cerana</i>	Japan, Kyoto	AP017314	[54]
11	<i>Apis dorsata</i>	Thailand	AP018369	[53]
12	<i>Apis dorsata</i>	Thailand, Chiang Rai	KX908207	[56]
13	<i>Apis dorsata</i>	China	KC294229	[57]
14	<i>Apis mellifera capensis</i>	South Africa	MG552681	[43]
15	<i>Apis mellifera capensis</i>	South Africa	MG552682	[43]
16	<i>Apis mellifera capensis</i>	South Africa	MG552683	[43]
17	<i>Apis mellifera capensis</i>	South Africa	MG552684	[43]
18	<i>Apis mellifera capensis</i>	South Africa	MG552685	[43]

19	<i>Apis mellifera capensis</i>	South Africa	MG552686	[43]
20	<i>Apis mellifera capensis</i>	South Africa	MG552687	[43]
21	<i>Apis mellifera capensis</i>	South Africa	MG552688	[43]
22	<i>Apis mellifera capensis</i>	South Africa	MG552689	[43]
23	<i>Apis mellifera capensis</i>	South Africa	MG552690	[43]
24	<i>Apis mellifera capensis</i>	South Africa	MG552691	[43]
25	<i>Apis mellifera capensis</i>	South Africa	MG552692	[43]
26	<i>Apis mellifera capensis</i>	South Africa	MG552693	[43]
27	<i>Apis mellifera capensis</i>	South Africa	MG552694	[43]
28	<i>Apis mellifera capensis</i>	South Africa	MG552695	[43]
29	<i>Apis mellifera capensis</i>	South Africa	MG552696	[43]
30	<i>Apis mellifera capensis</i> * <i>A. mellifera scutellata</i>	South Africa	MG552697	[43]
31	<i>Apis mellifera scutellata</i>	South Africa	MG552698	[43]
32	<i>Apis mellifera scutellata</i>	South Africa	MG552699	[43]
33	<i>Apis mellifera scutellata</i>	South Africa	MG552700	[43]
34	<i>Apis mellifera scutellata</i>	South Africa	MG552701	[43]
35	<i>Apis mellifera scutellata</i>	South Africa	MG552702	[43]
36	<i>Apis mellifera scutellata</i>	South Africa	MG552703	[43]
37	<i>Apis mellifera monticola</i>	east African honey bee, reared in Germany	MF678581	[40]
38	<i>Apis mellifera</i>	Jordan?	MF059100	Haddad, unpublished
39	<i>Apis mellifera mellifera</i>	Norway	KY926884	Eimanifar et al., unpublished
40	<i>Apis mellifera intermissa</i>	Morocco	KY926883	Eimanifar et al., unpublished
41	<i>Apis mellifera scutellata</i>	Germany	KY614238	Eimanifar et al., unpublished
42	<i>Apis mellifera lamarckii</i>	Germany (Egypt source)	KY464958	[41]
43	<i>Apis mellifera meda</i>	Germany	KY464957	[42]
44	<i>Apis mellifera ligustica</i>	Italy	KX908209	[56]
45	<i>Apis mellifera capensis</i>	South Africa	KX870183	[39]
46	<i>Apis mellifera syriaca</i>	Levant Region	KP163643	[46]
47	<i>Apis mellifera intermissa</i>	Algeria	KM458618	[47]
48	<i>Apis mellifera scutellata</i>	Mexico: Queretaro	KJ601784	[45]
49	<i>Apis mellifera mellifera</i>	?	KJ396181	[44]
50	<i>Apis mellifera</i>	New Zealand	AP018435	[49]
51	<i>Apis mellifera</i>	United Kingdom	AP018432	[50]

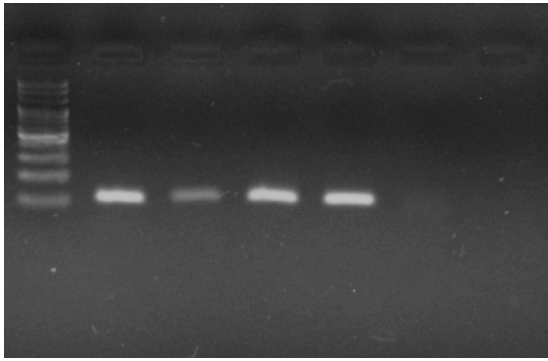


Figure S1. Preliminary specificity test of ACF/ACR (Suarez et al., 2018) using DNA extracts of honeybees. DNA: Lane 1, *A. dorsata* (Nepal); Lane 2, *A. dorsata* (Thailand); Lane 3, *A. cerana* (South Korea); Lane 4, *A. cerana* (Nepal); Lane 5, *A. mellifera* (South Korea); Lane 6, *A. mellifera* (Thailand); Lane M, DNA marker.

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