**Table S2. Morphological and biochemical characterisation of bacterial isolates**. Bacterial isolates were grown at 37 °C on nutrient agar for macroscopic and microscopic analysis.

| Origin of isolation | Isolate | Morphological and biochemical characterization | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Size | Form | Elevation | Margin | Opacity | Texture | Color | Gram-stain | Shape | Endospore | Catalase | Amylolytic | Proteolytic | Lipolytic | Cellulolytic |
| Propolis | PD1a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | PD3a | S | Circular | Convex | Entire | Translucent | Moist | White | + | Rod-shaped | + | + | - | - | - | - |
|  | PD4a | S | Circular | Convex | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | - | - | - | - |
|  | PD5a | M | Circular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | - | + | + | + |
|  | PD6a | M | Circular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | - | + | + | + |
|  | PD7a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | PD9a | L | Umbonate | Convex | Entire | Opaque | Viscid | White | + | Rod-shaped | + | + | + | + | + | + |
|  | PD10a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | \*PD12a | S | Circular | Convex | Entire | Translucent | Moist | Yellowish | - | Rod-shaped | - | + | - | - | - | + |
|  | PD13a | M | Irregular | Raised | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | PD14a | S | Circular | Convex | Entire | Translucent | Moist | White | + | Rod-shaped | + | + | - | - | - | - |
|  | PD16a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | \*PG1b | S | Circular | Convex | Entire | Translucent | Moist | Yellowish | - | Rod-shaped | - | + | - | - | - | + |
|  | PM1c | M | Circular | Raised | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | PM2c | M | Circular | Raised | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | PM3c | M | Circular | Raised | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | \*PM4c | S | Circular | Convex | Entire | Translucent | Moist | Yellowish | - | Rod-shaped | - | + | - | + | - | + |
|  | PU1d | L | Umbonate | Convex | Entire | Opaque | Viscid | White | + | Rod-shaped | + | + | + | + | + | + |
| Bee bread | BD1a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | BD2a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | BD3a | M | Irregular | Flat | Entire | Opaque | Dry | White | + | Rod-shaped | + | + | - | + | + | + |
|  | BD4a | S | Circular | Convex | Entire | Opaque | Moist | Whitish-yellow | + | Rod-shaped | + | + | - | - | + | + |
|  | BD5a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | BD6a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | BD7a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | BD8a | M | Circular | Raised | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | - |
|  | BD9a | M | Circular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | - | + | + | + |
|  | \*BG1b | S | Irregular | Raised | Entire | Opaque | Dry | Yellowish | + | Filamentous | + | + | - | - | - | + |
|  | BM1c | M | Circular | Raised | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | BM2c | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | BM3c | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | BM4c | S | Circular | Convex | Entire | Opaque | Moist | Whitish-yellow | + | Rod-shaped | + | + | - | + | - | + |
| Honey | HD1a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | HD2a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | HD3a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | HD4a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | HD7a | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | HM1c | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | HM2c | M | Irregular | Flat | Entire | Opaque | Dry | White | + | Rod-shaped | + | + | + | + | - | - |
|  | HU1d | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
|  | HU2d | M | Irregular | Flat | Entire | Opaque | Moist | White | + | Rod-shaped | + | + | + | + | - | + |
| a Yayasan Al-Jenderami  b Ladang nangka PASFA  c Giant B Farm  d Ladang 10 UPM  \*Not screened as *Bacillus* spp.  S : small (2-3 mm), M : medium (4-5 mm), L : large (> 5 mm), + : positive, - : negative | | | | | | | | | | | | | | | | |