**Table S1.** List of 85 *L. kunkeei* strains isolated from bee bread and honeybees gut: source andantifungal activity, on to MEA agar plates, against *A. apis* DSM 3116. The strains were divided in three inhibition classes on the basis of clear zone diameter (mm) around bacterial colony: Low activity (0-30 mm); Medium activity (30-60 mm); High activity (> 60 mm).

**Table S2**. Inhibition (%) of *A. apis* DSM 3116 (radial growth) on to MEA agar plates, after 6 day, using Broth Culture (BC), Cell Pellet (CP), Cell Free Supernatant (CFS) and Cell Lysate (CL) of *L. kunkeei* strains. Results are shown as mean ± standard deviation (n=3). Different lowercase letters (a-d), in each column, and different uppercase letters (A-H), in each row, indicate significant differences (p < 0.05).

**Table S3**. Adhesion of the *L. kunkeei* strains to hydrocarbon (expressed as Hydrophobicity %) measured using the BATH test after 15, 30 and 60 min (contact time). Results are shown as mean ± standard deviation (n=3). For every hydrocarbon, different lowercase letters (a-d), in each column, and different uppercase letters (A-I), in each row, indicate significant differences (p < 0.05).

**Table S4.** Biofilm formation (expressed as OD value at 580nm) of *L. kunkeei* strains in MRS with glucose, fructose, sucrose or without sugar, after incubation at 37° C for 24 h. Results are shown as mean ± standard deviation (n=3). Different lowercase letters (a-c), in each column, and different uppercase letters (A-E), in each row, indicate significant differences (p < 0.05).