Supplementary material

Title: Biofilm formation by *Exiguobacterium* sp. DR11 and DR14 alter polystyrene surface properties and initiate biodegradation

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Fig. S1 Characterization of *Exiguobacterium* strains. (a) and (b) represents DIC images of *Exiguobacterium sibiricum* strain DR11 and *E. undae* strain DR14 respectively. Scale bar is equivalent to 5 μm. (c) represents the proteolytic activity of strain DR11 after incubation at 30˚C for 24 h. Psychrophilic nature of the strains was determined by the growth at lower temperatures as indicated in the plot (d) which was measured at 15˚C.

Fig. S2 Atomic force microscope images of *Exiguobacterium* sp. biofilms formed over polystyrene surface. (a) and (c) represents 2D and 3D images of *E. sibiricum* strain DR11 biofilm respectively and (b) and (d) of *E. undae* strain DR14. Colour bar represents thickness of biofilm on polystyrene surface.

Fig. S3 Comparison of mono and co-culture biofilms formed by *Exiguobacteriium* sp. (A) DIC image of biofilm formed by both the strains combined in 1:1 ratio, (B) biofilm formed by *Exiguobacterium* sp. DR11, and (C) *Exiguobacterium* sp. DR14. Overnight cultures were re-inoculated (1:100 dilution) in 35-mm polystyrene petri-dishes containing fresh TSB broth. Cultures were incubated at 30˚C for 48 h under static condition. Images were taken at 40X magnification. Scale bar represents 10 μm. (D) Biofilm quantification after crystal violet staining showed a significant difference between mono and multispecies cultures ($p < 0.05$).

Table S1 Comparison between the contact angle of the previous report and the present study. Current data show the average reduction of water contact angles of PS incubated with the bacteria as compared to control (bacterial untreated samples).

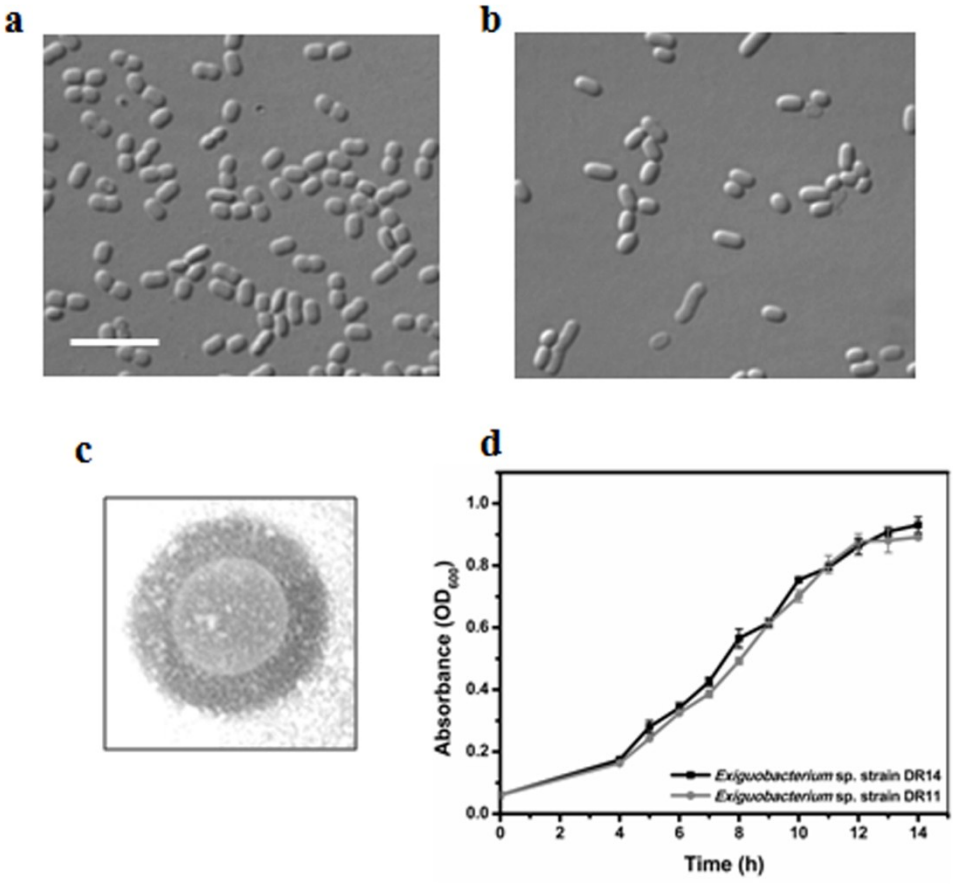
a
b
c
d
Absorbance (OD_{600})
Time (h)
Exiguobacterium sp. strain DR14
Exiguobacterium sp. strain DR11

Fig. S1

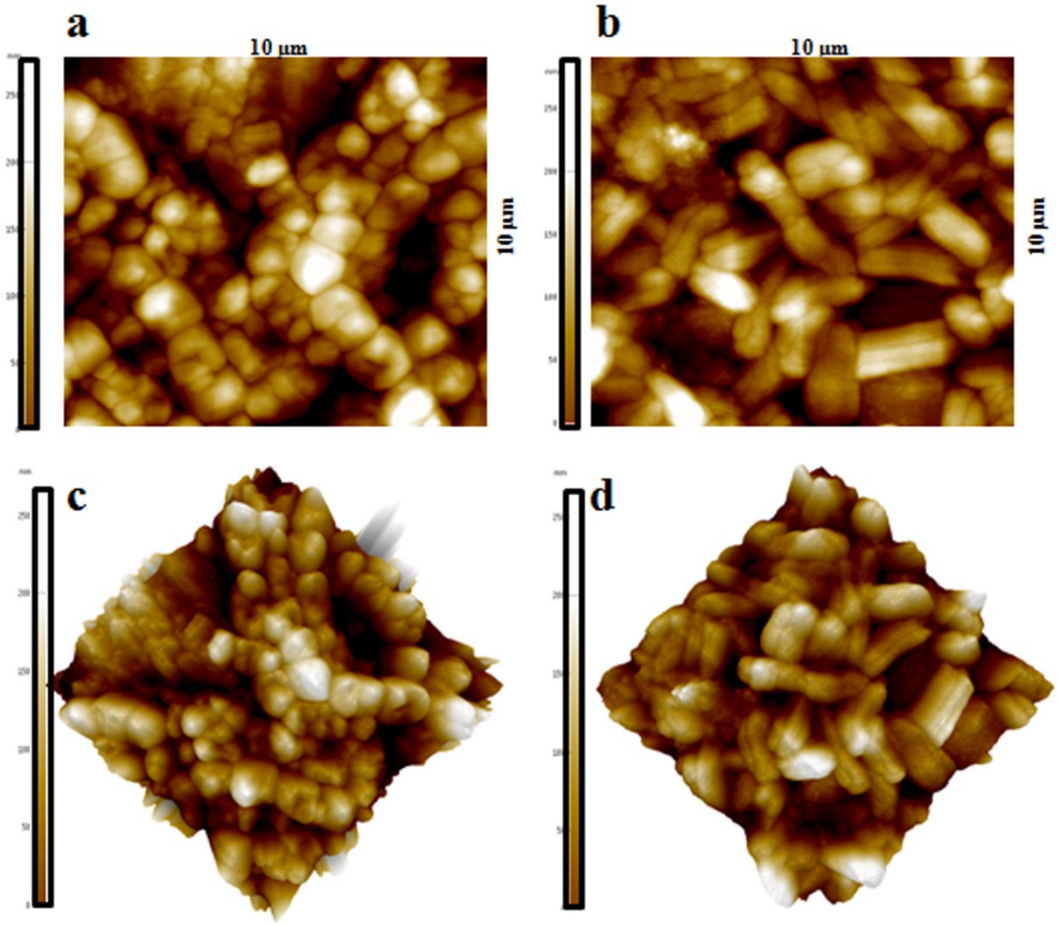

Fig. S2

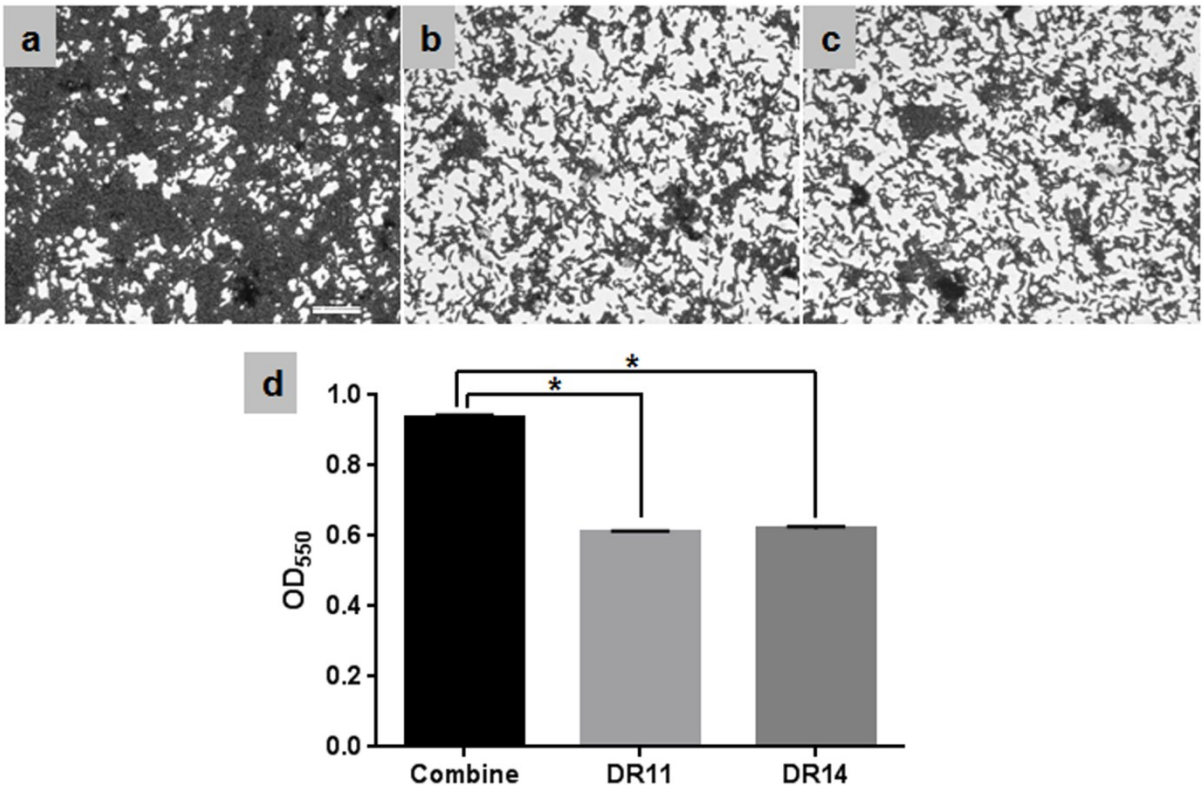

Fig. S3

Table S1

	Reported (Y Yang et al. 2015)	This study
Control	95.8 +/- 1.6	95.7 +/- 1
Test	80.8 +/- 3.0 (*Exiguobacterium* sp. strain YT2)	73.2 +/- 1.6 (*Exiguobacterium* sp. strain DR11)
Test		74.03 +/- 2.63 (*Exiguobacterium* sp. strain DR14)