

Figure S1. Absorption spectra of β -1,3,6 glucan solution.

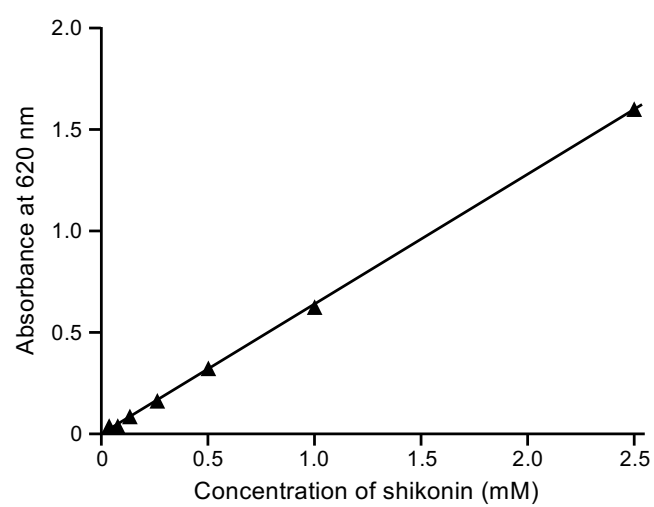


Figure S2. Calibration curve of shikonin dispersion in 1.0 M aqueous NaOH solution ($n = 3$, six technical replicates for each) .

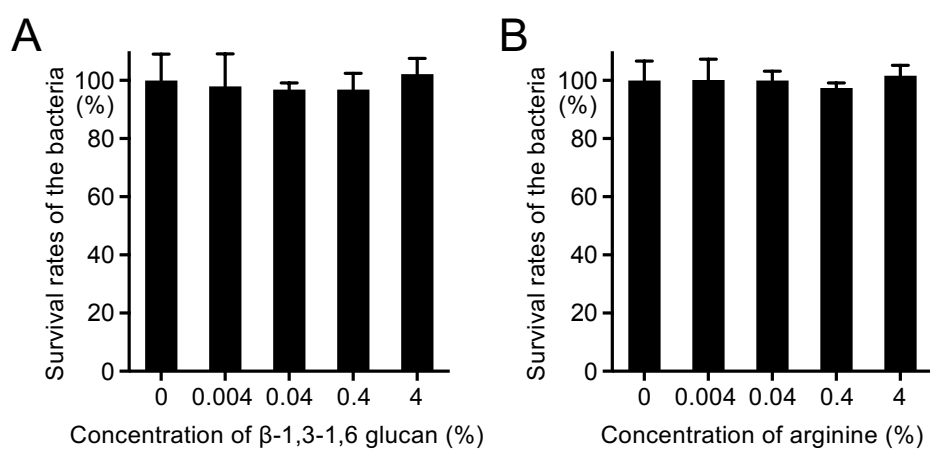


Figure S3. Effects of β -1,3-1,6 glucan and arginine solution on survival of *S. mutans* MT8148 suspended in phosphate-buffered saline (PBS). Inhibitory effect of β -1,3-1,6 glucan (A) and arginine (B) solution after 12 h on the survival of *S. mutans* MT8148. The concentration of β -1,3-1,6 glucan and arginine was calculated as 100% of the shikonin dispersion stock solution amount. Since 200 μ M of shikonin corresponds to 4% of shikonin dispersion, the concentrations of shikonin (Figure 2) and β -1,3-1,6 glucan and arginine are equal in "w/v".

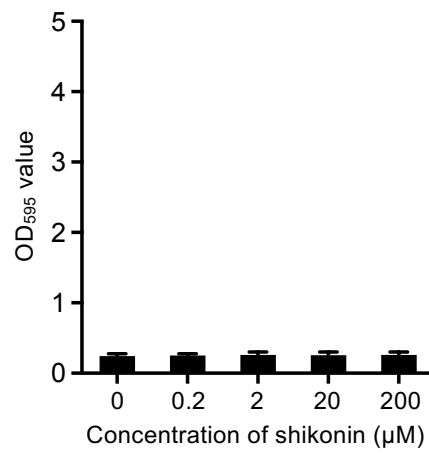


Figure S4. Effects of shikonin dispersion on biofilm formation by *S. mutans* MT8148 cultured in BHI broth without 1% sucrose.

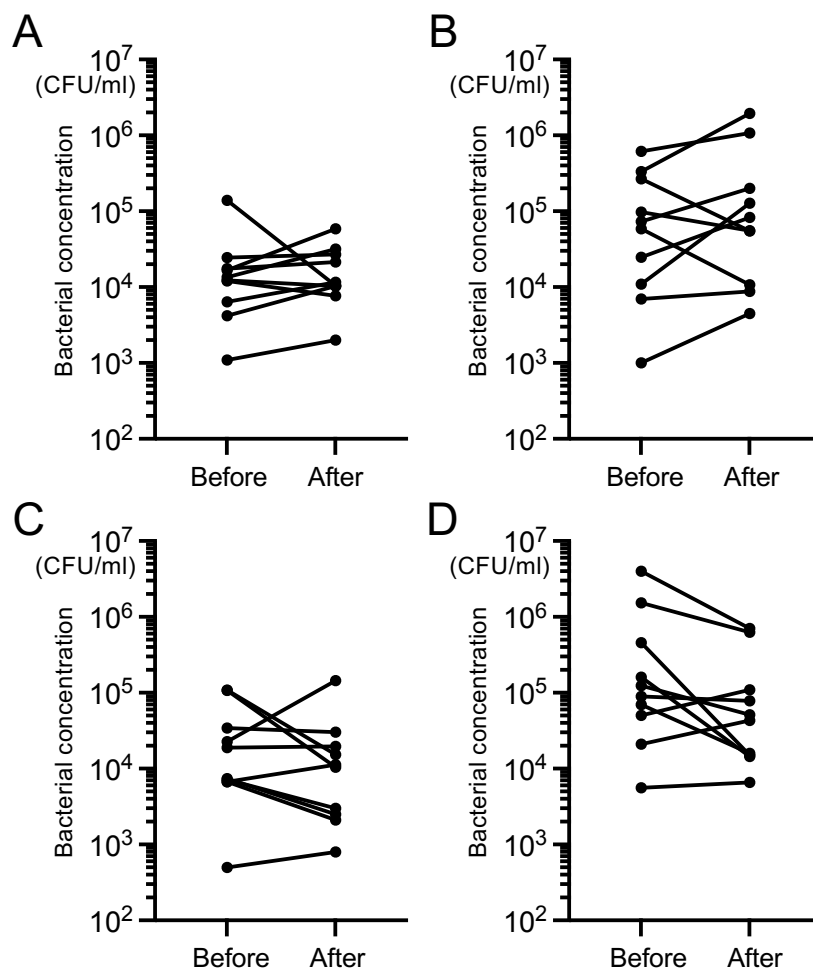


Figure S5. Changes in the number of *S. mutans* in saliva before and after using toothpaste with and without shikonin dispersion. The number of *S. mutans* (in CFU/ml) before and after brushing with toothpaste with no shikonin dispersion for 1 week in Group 1 (A) and Group 2 (B) and before and after brushing with toothpaste containing shikonin dispersion for 1 week in Group 1 (C) and Group 2 (D).