Methylobacterium sp. FD1 utilizing formaldehyde was isolated from soil. The resting cells of FD1 degraded high concentrations of formaldehyde (~2.7 M) and produced formic acid and methanol that were molar equivalents of one-half of the degraded formaldehyde. This result suggests that formaldehyde degradation by FD1 is caused by formaldehyde dismutase. The optimal temperature and pH for formaldehyde degradation by the resting cells of FD1 were 40 °C and 5–7, respectively. The lyophilized cells of FD1 also degraded high concentrations of formaldehyde. The formaldehyde degradation activity of the lyophilized cells was maintained as the initial activity at 25 °C for 287 days. These results suggest that the lyophilized cells of FD1 are useful as formaldehyde degradation materials.

Degradation of high concentrations of formaldehyde by lyophilizes cells of Methylobacterium sp. FD1, which was newly isolated from soil.