

Supporting Materials

Table S 1: Components of synthetic wastewater.

Chemical	Formula	Amount (g/L)
Ammonium chloride	NH_4Cl	0.13
Calcium chloride dihydrate	$\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$	0.22
Dextrose	$\text{C}_6\text{H}_{12}\text{O}_6$	0.4
Magnesium sulfate heptahydrate	$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$	0.28
Potassium phosphate monobasic	KH_2PO_4	0.005
Sodium bicarbonate	NaHCO_3	0.04
Sodium chloride	NaCl	0.18
Soy pepton	$\text{C}_{19}\text{H}_{14}\text{O}_2$	0.18

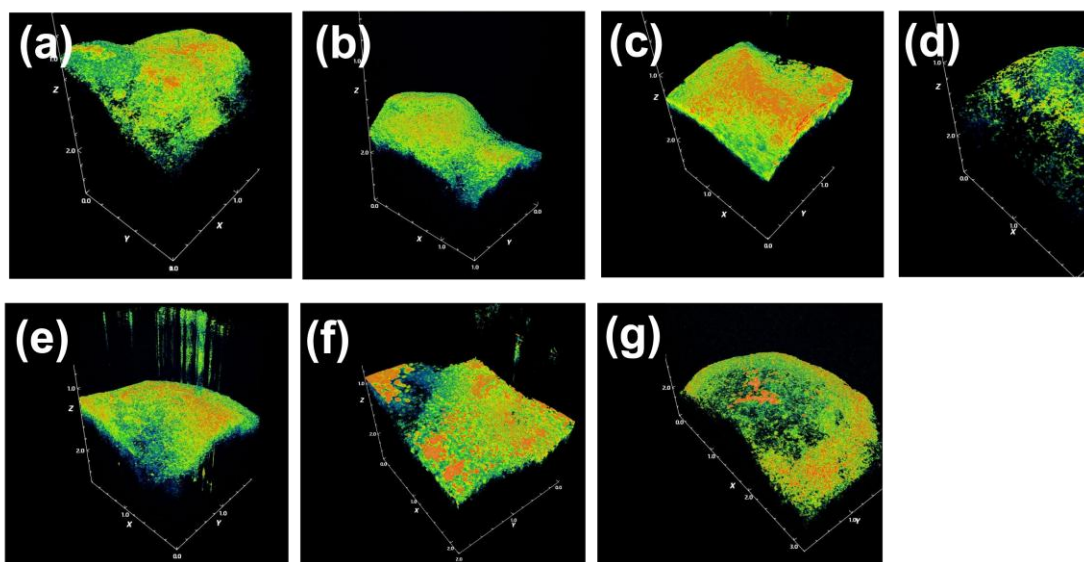


Figure S1 :OCT 3D images of FBGs from reactors operated at room temperature, (a) dry-preserved, (b) preserved at -15°C , (c) -80°C , (d) control; and FB granules from reactors operated at cold temperature, (e) dry-preserved, (f) preserved at -15°C , (g) -80°C .

Table S2: P-values from one-way ANOVA for reactors operated at room temperature.

Parameter	P-value
COD Removal	0.536221146
NH ₄ ⁺ -N Removal	0.835984204
NO ₃ ⁻ -N Removal	0.826103348

Table S3: P-values from one-way ANOVA for reactors operated at cold temperature.

Parameter	P-value
COD Removal	0.323692123
NH ₄ ⁺ -N Removal	0.981526585
NO ₃ ⁻ -N Removal	0.993632809

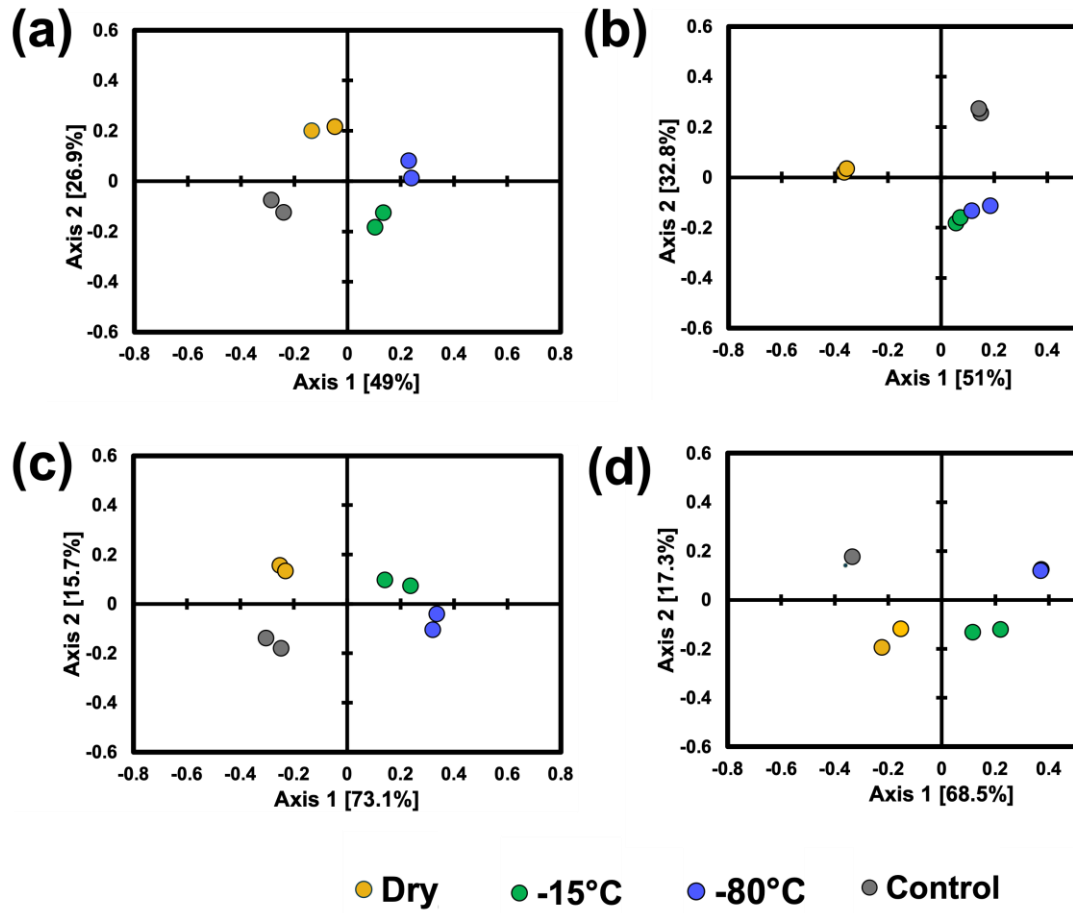


Figure S2: Beta-diversity analysis of (a) bacteria during room-temperature operation, (b) bacteria during low-temperature operation, (c) fungi during room-temperature operation, and (d) fungi during low-temperature operation.