FIGURES

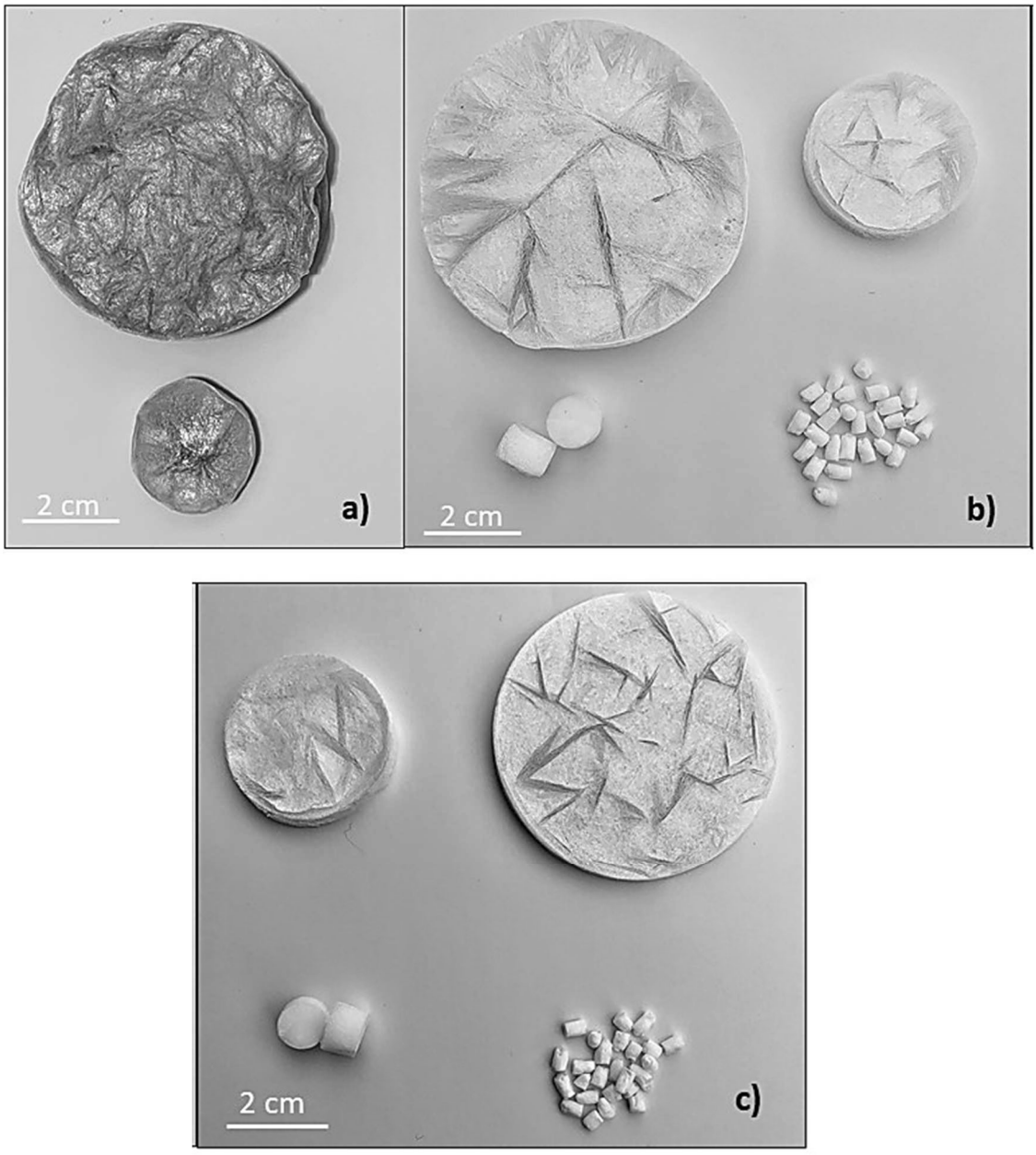


FIG. 1

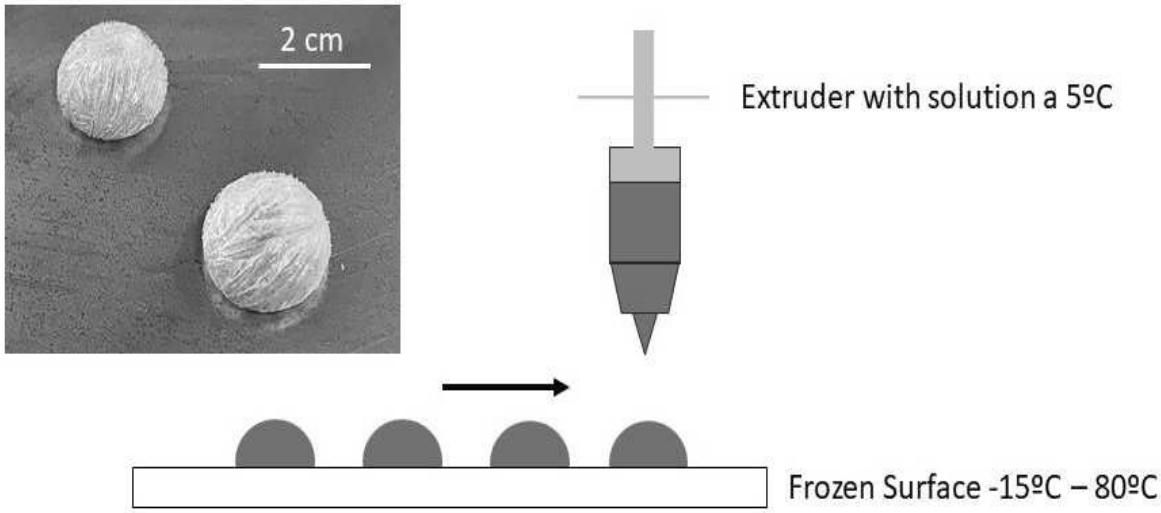

2 cm
Extruder with solution a 5ºC
Frozen Surface -15ºC – 80ºC

FIG. 2

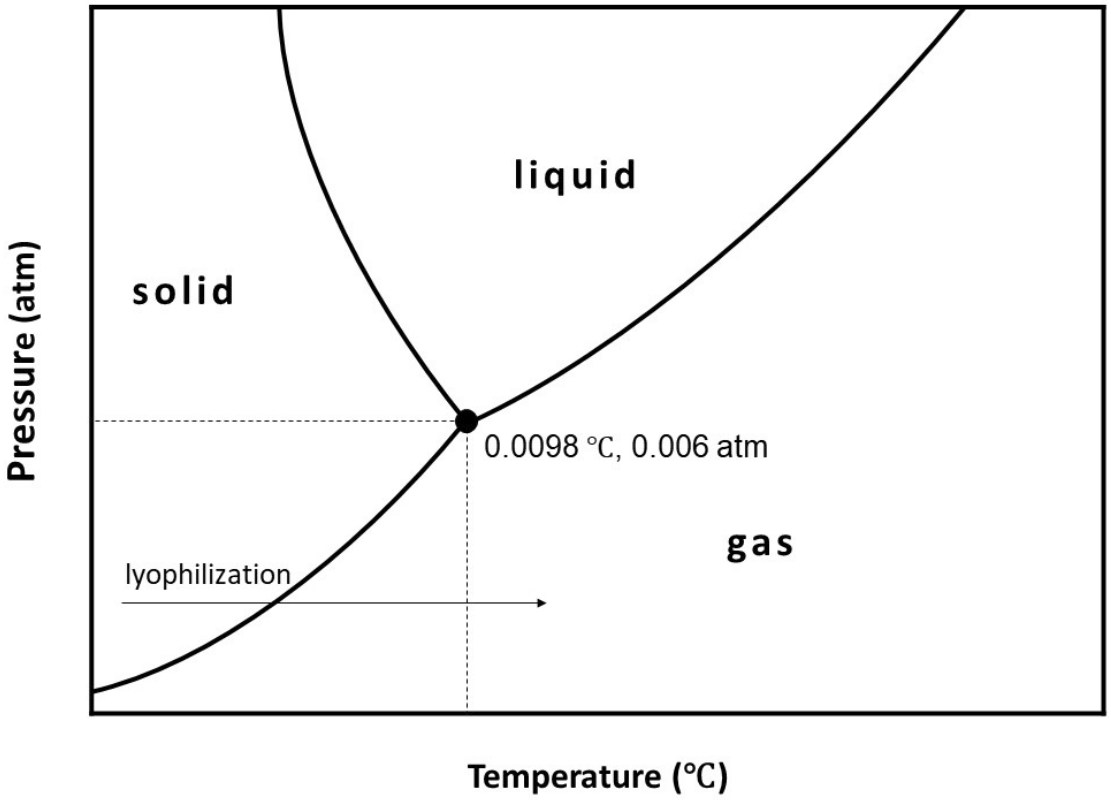

liquid
solid
Pressure (atm)
0.0098 ℃, 0.006 atm
gas
lyophilization
Temperature (℃)

FIG. 3

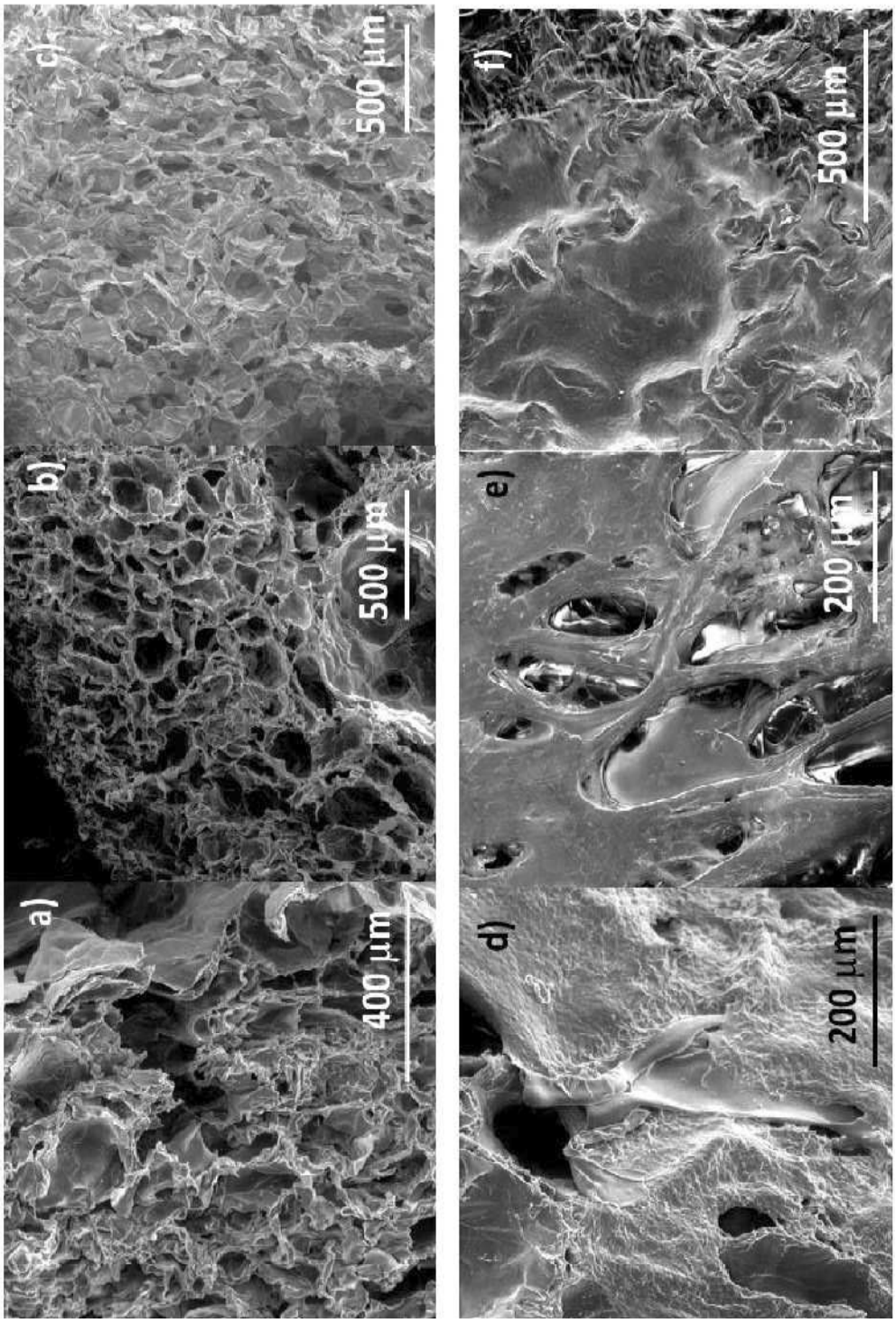
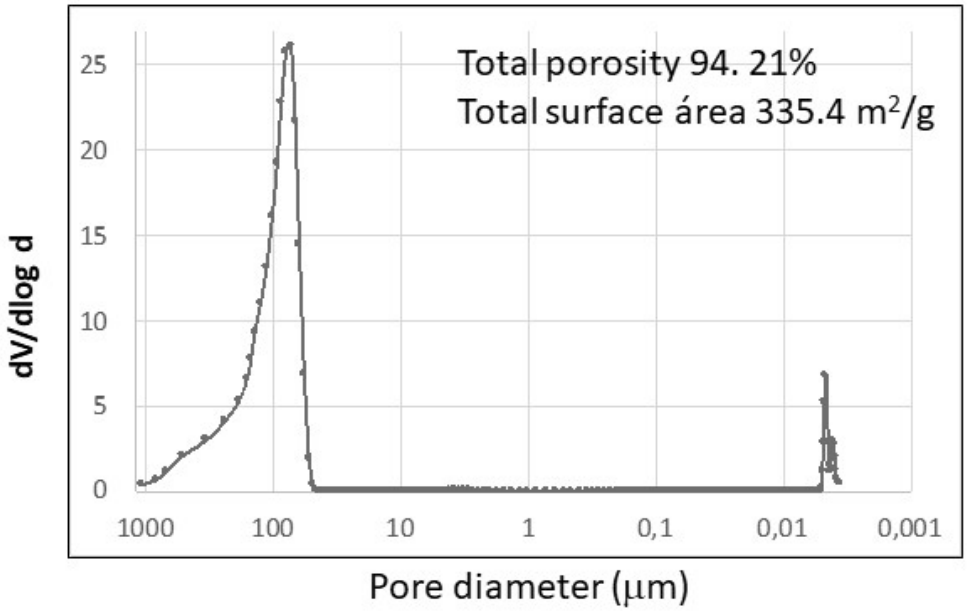


FIG. 4

A


Total porosity 94. 21%
Total surface área 335.4 m²/g
dV/dlog d
25
20
15
10
5
0
1000
100
10
1
0,1
0,01
0,001
Pore diameter (μm)

B

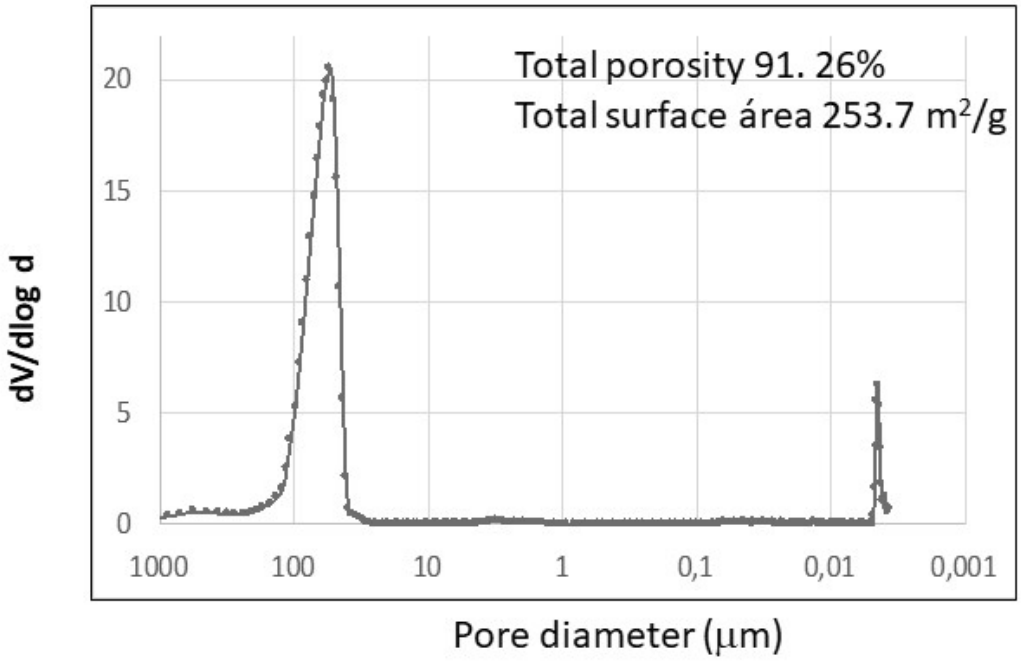
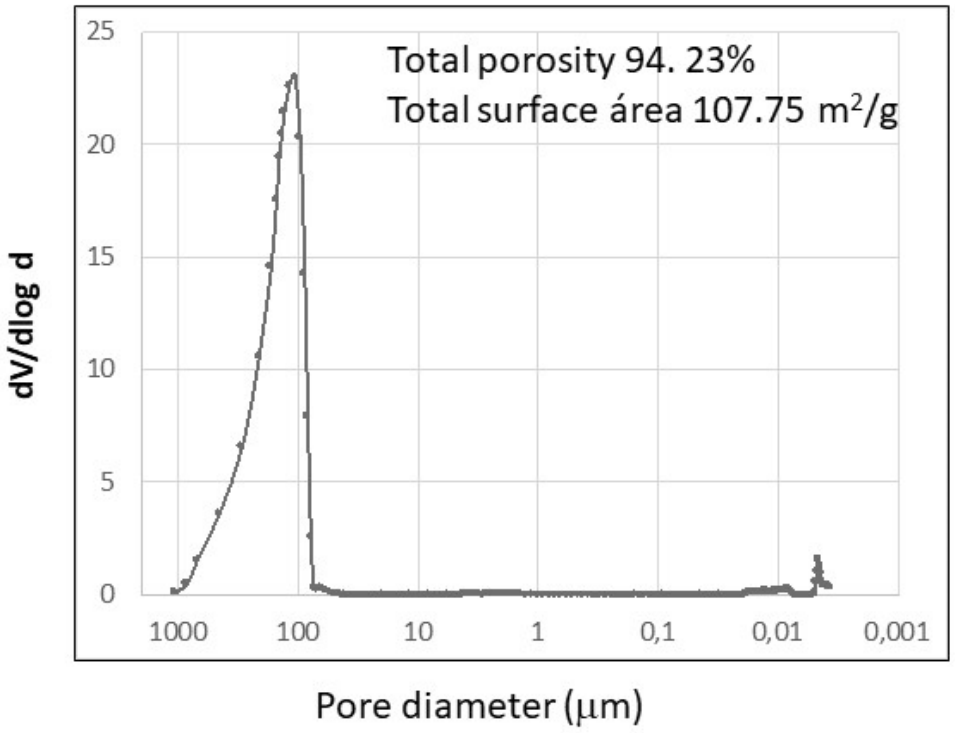

Total porosity 91. 26%
Total surface área 253.7 m²/g
dV/dlog d
20
15
10
5
0
1000
100
10
1
0,1
0,01
0,001
Pore diameter (μm)

FIG. 5

A


Total porosity 94. 23%
Total surface área 107.75 m²/g
dV/dlog d
25
20
15
10
5
0
1000
100
10
1
0,1
0,01
0,001
Pore diameter (μm)

B

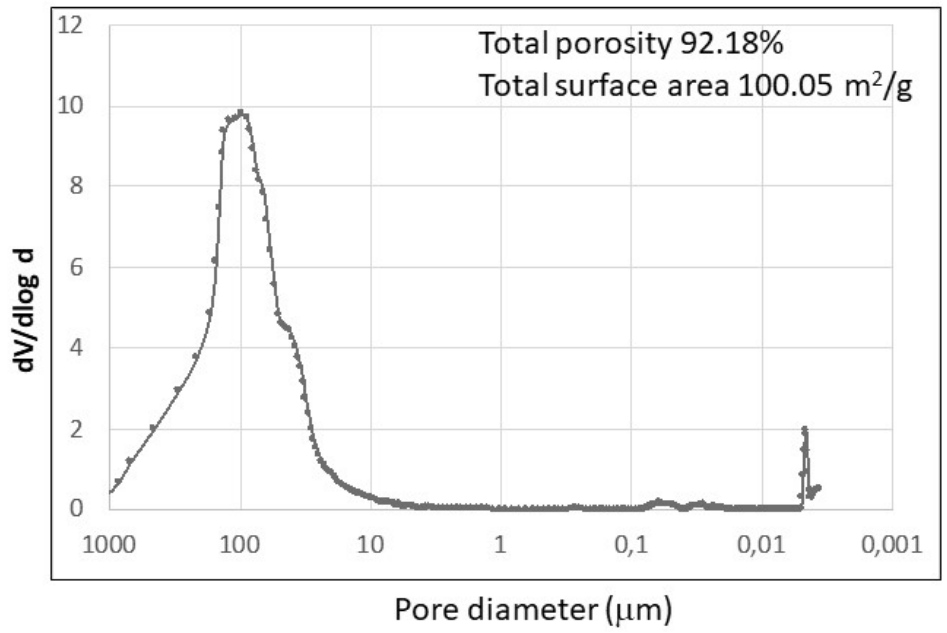
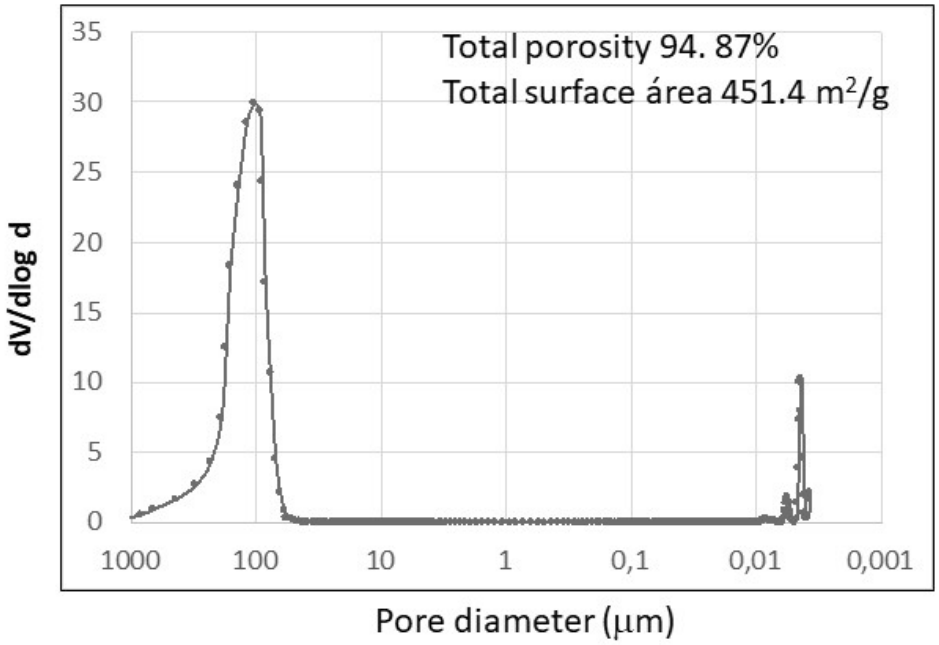

Total porosity 92.18%
Total surface area 100.05 m²/g
dV/dlog d
12
10
8
6
4
2
0
1000
100
10
1
0,1
0,01
0,001
Pore diameter (μm)

FIG. 6

A


Total porosity 94. 87%
Total surface área 451.4 m²/g
dV/dlog d
35
30
25
20
15
10
5
0
1000
100
10
1
0,1
0,01
0,001
Pore diameter (μm)

B

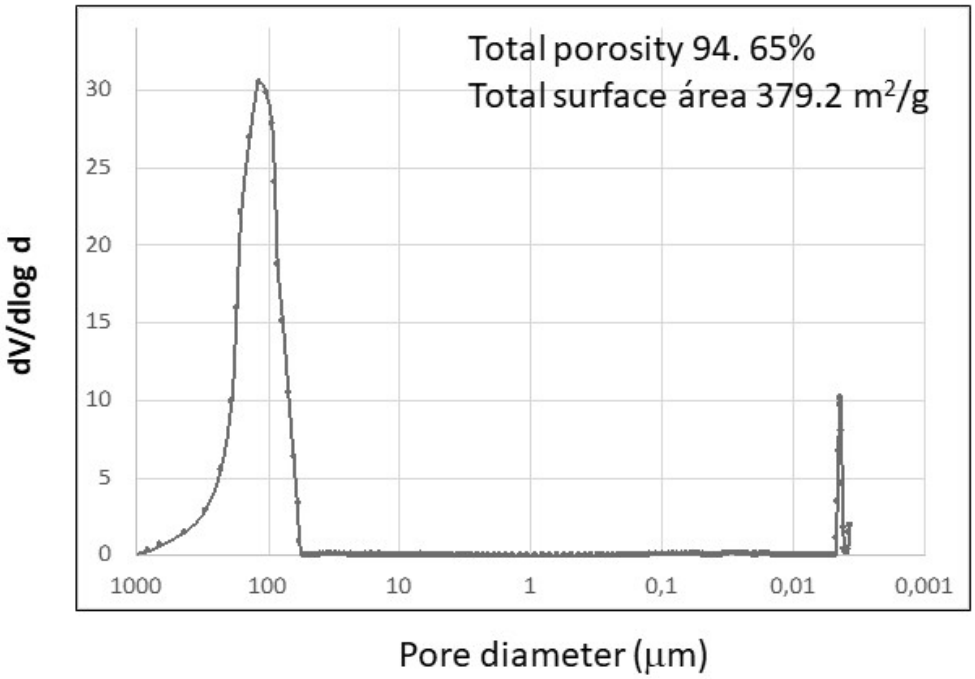
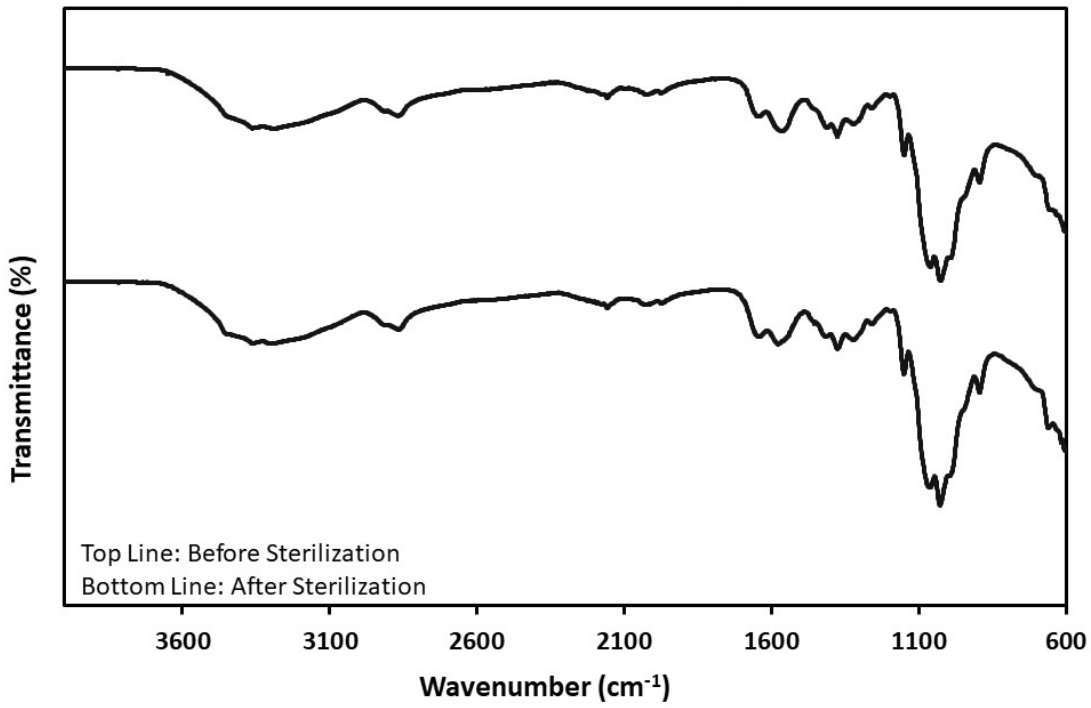

Total porosity 94. 65%
Total surface área 379.2 m²/g
dV/dlog d
30
25
20
15
10
5
0
1000
100
10
1
0,1
0,01
0,001
Pore diameter (μm)

FIG. 7

A


Transmittance (%)
Top Line: Before Sterilization
Bottom Line: After Sterilization
3600
3100
2600
2100
1600
1100
600
Wavenumber (cm-1)

B

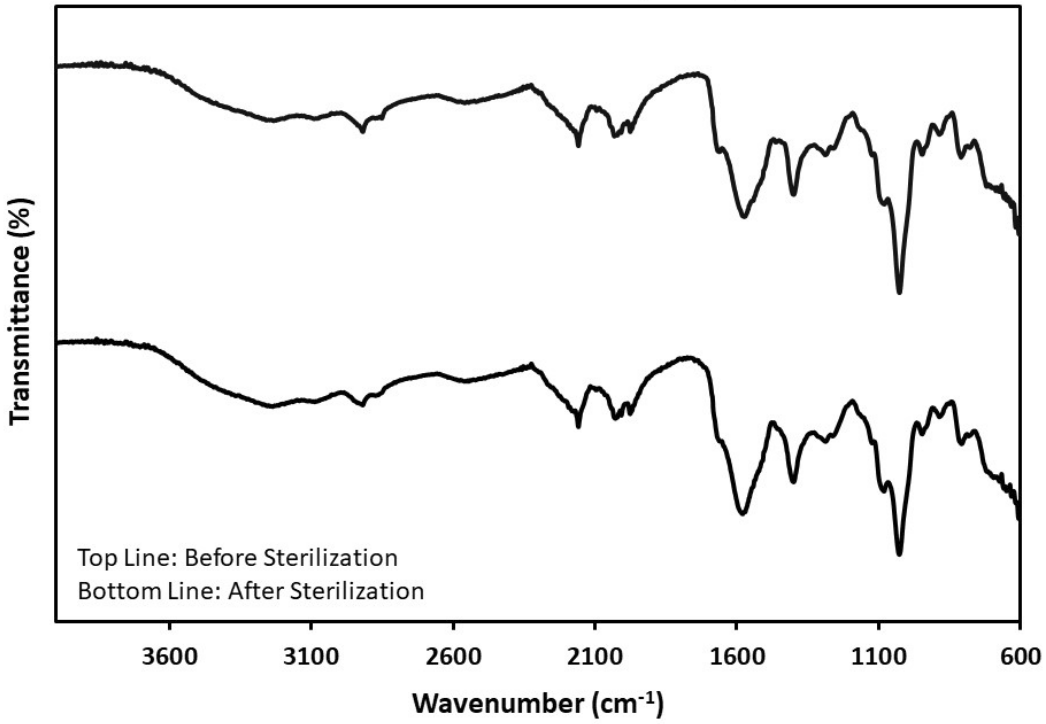

Transmittance (%)
Top Line: Before Sterilization
Bottom Line: After Sterilization
3600
3100
2600
2100
1600
1100
600
Wavenumber (cm-1)

FIG. 8

C

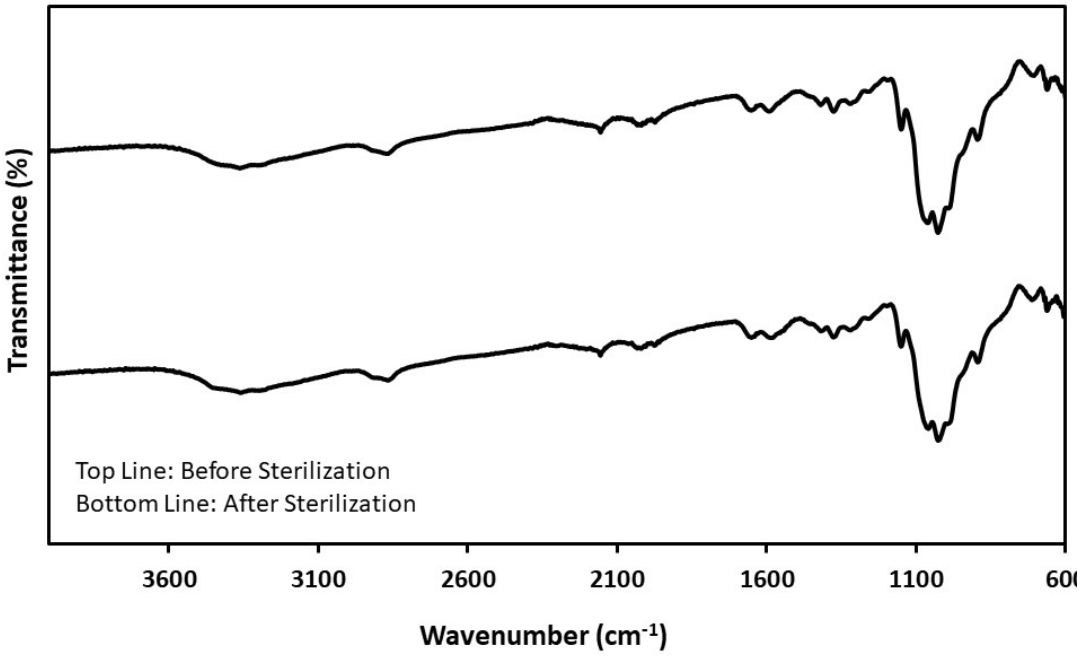


FIG. 8 (cont.)

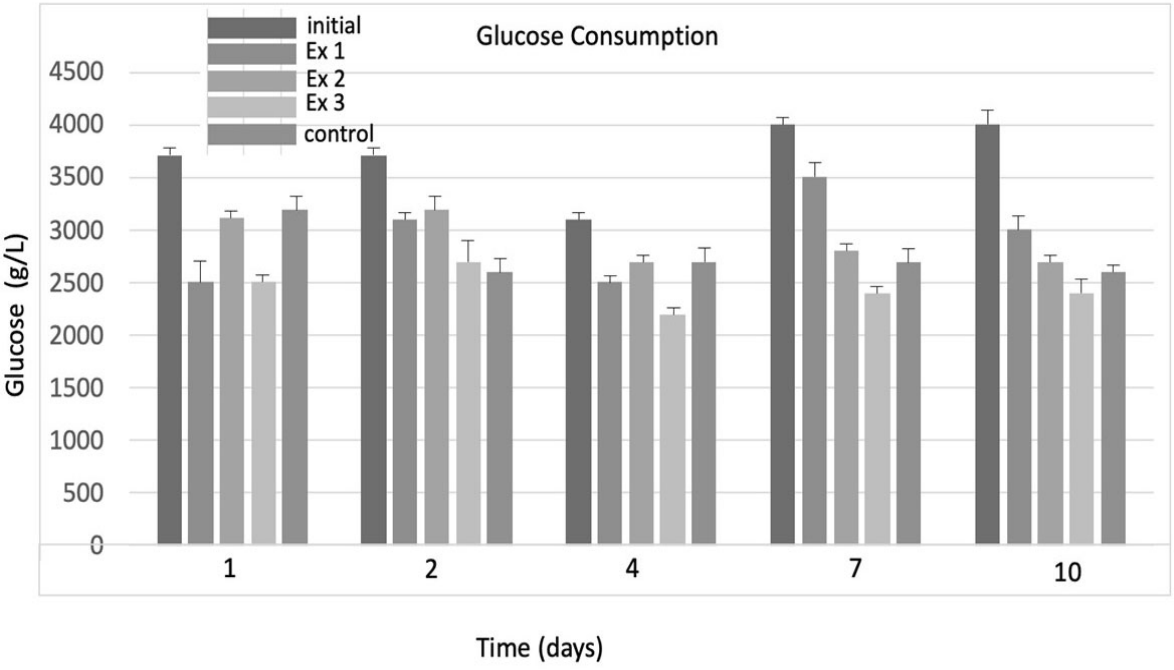


FIG. 9