

PC – Purified recombinant bovine alpha-S1-casein
CL – Crude lysate

FIG. 1

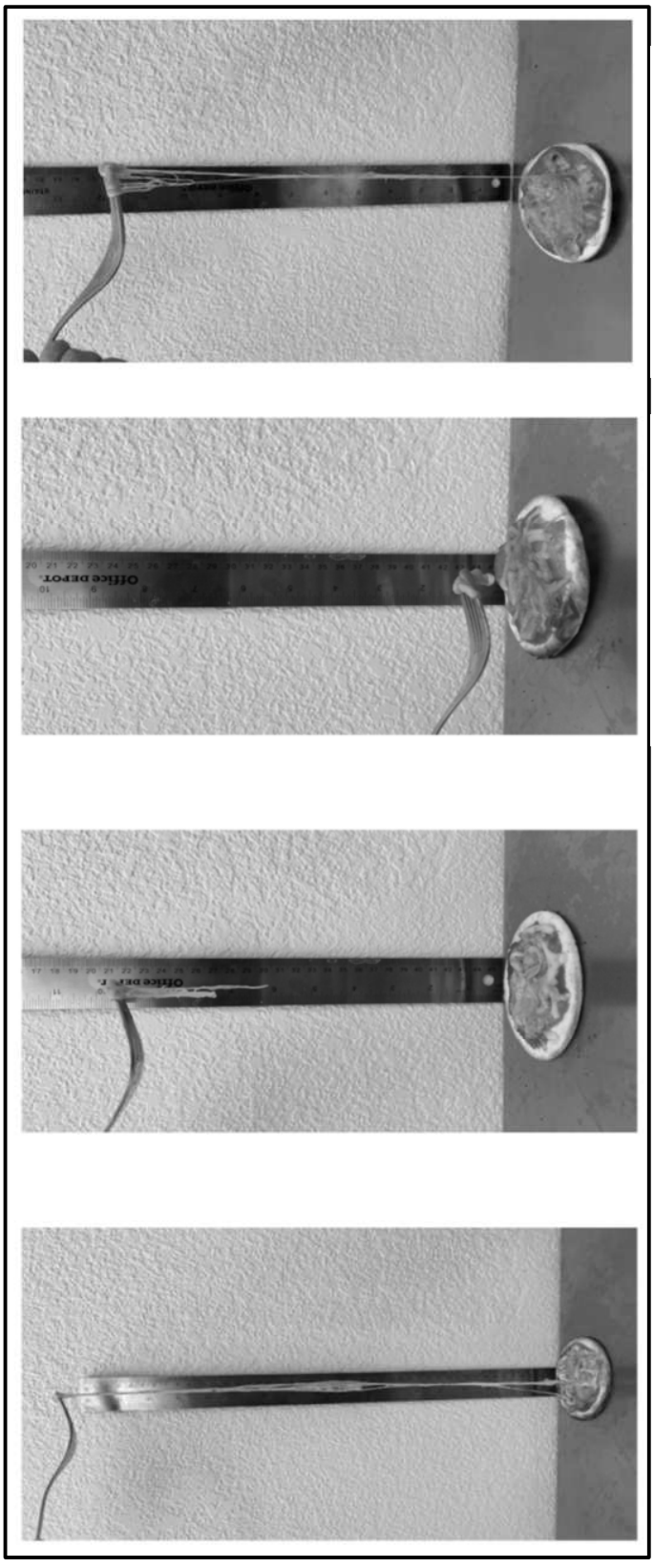

Low-moisture mozzarella >18 inches
Imitation mozzarella <10 inches
Plant-based vegan mozzarella-style cheese <1 inches
NC1 mozzarella cheese analogue >12 inches

FIG.2

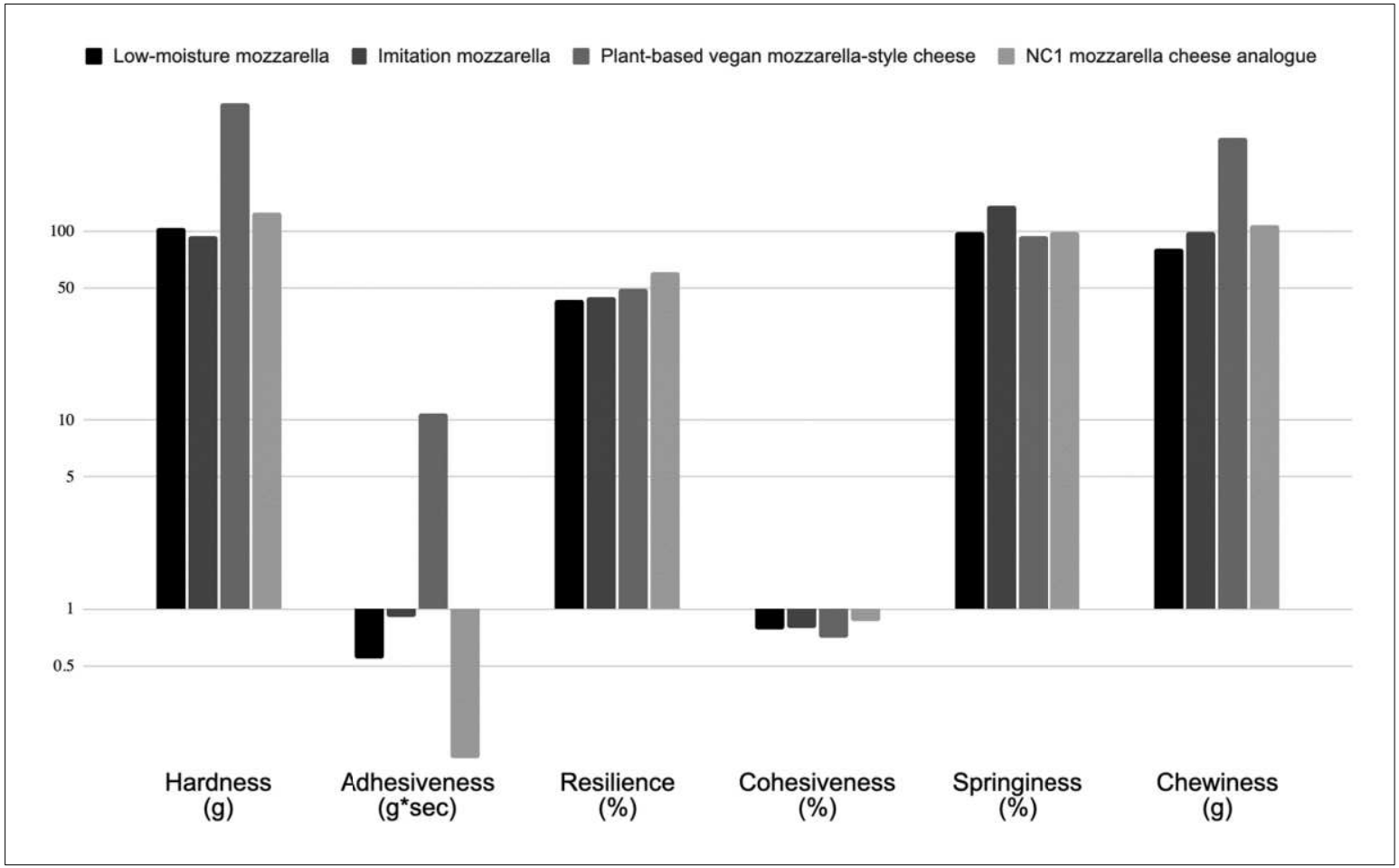

Low-moisture mozzarella
Imitation mozzarella
Plant-based vegan mozzarella-style cheese
NC1 mozzarella cheese analogue
100
50
10
5
1
0.5
Hardness (g)
Adhesiveness (g*sec)
Resilience (%)
Cohesiveness (%)
Springiness (%)
Chewiness (g)

FIG. 3

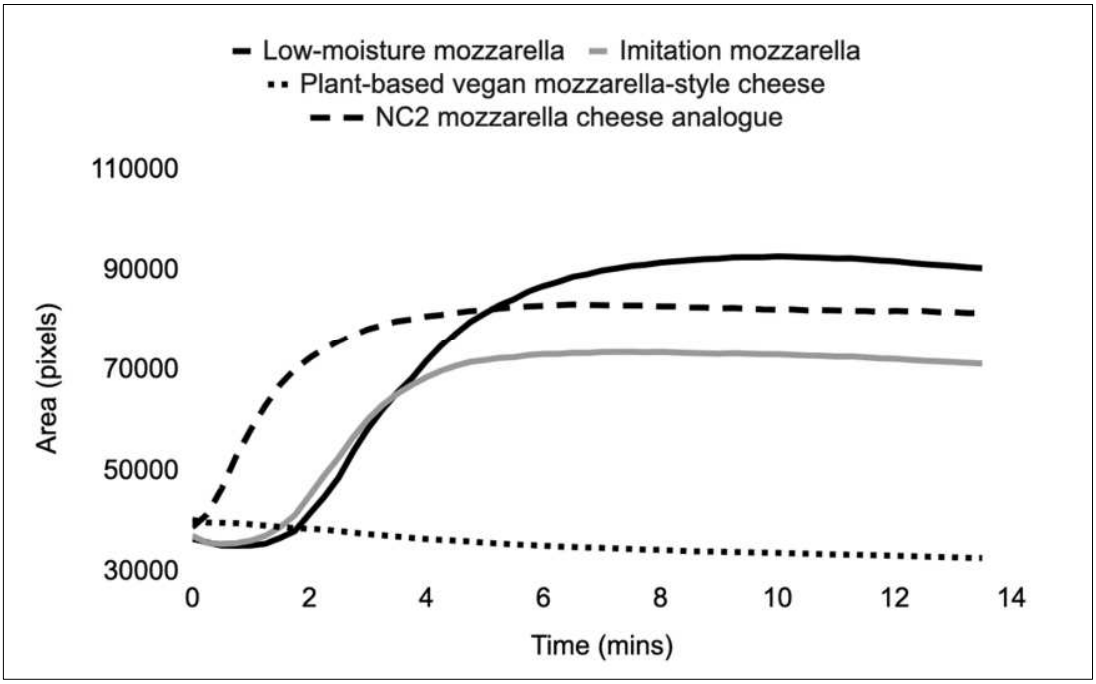

Low-moisture mozzarella
Imitation mozzarella
Plant-based vegan mozzarella-style cheese
NC2 mozzarella cheese analogue
110000
90000
70000
50000
30000
Area (pixels)
0
2
4
6
8
10
12
14
Time (mins)

FIG. 4


Work to Extend (g*sec)
Distance to Failure (mm)
250
200
150
100
50
0
g*sec or mm
Low-moisture mozzarella
Imitation mozzarella
Plant-based vegan mozzarella-style cheese
NC2 mozzarella cheese analogue

FIG. 5

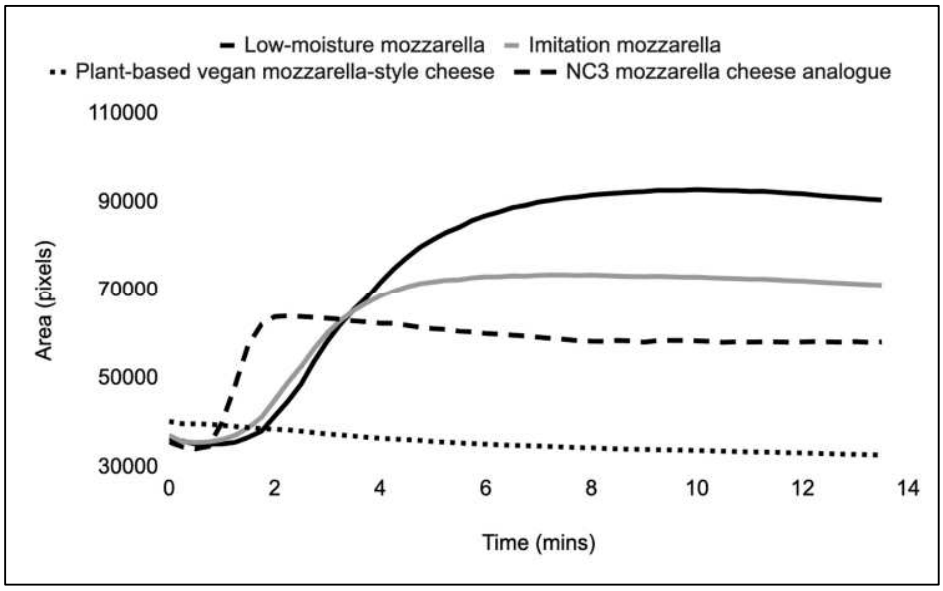

Low-moisture mozzarella
Imitation mozzarella
Plant-based vegan mozzarella-style cheese
NC3 mozzarella cheese analogue
110000
90000
70000
50000
30000
Area (pixels)
0
2
4
6
8
10
12
14
Time (mins)

FIG. 6


Work to Extend (g*sec)
Distance to Failure (mm)
400
300
200
100
0
g*sec or mm
Low-moisture mozzarella
Imitation mozzarella
Plant-based vegan mozzarella-style cheese
NC3 mozzarella cheese analogue

FIG. 7

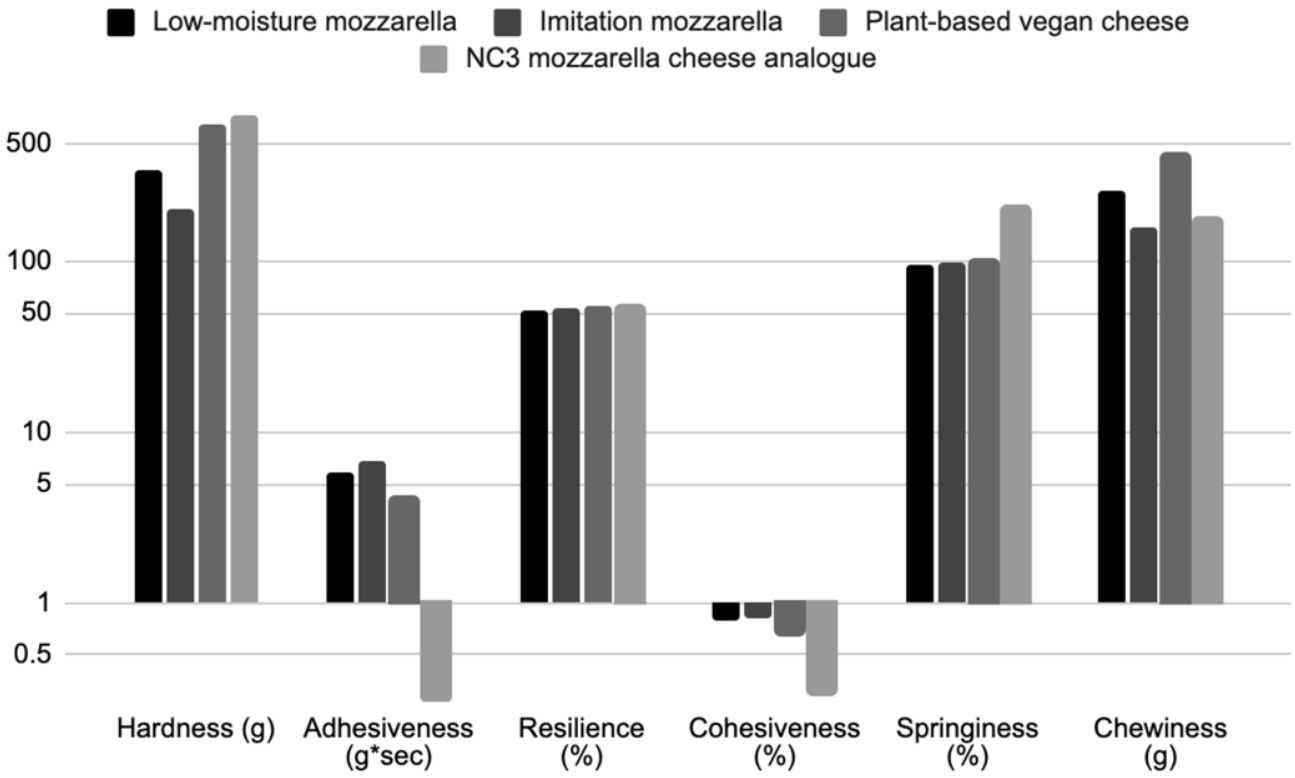

Low-moisture mozzarella
Imitation mozzarella
Plant-based vegan cheese
NC3 mozzarella cheese analogue
500
100
50
10
5
1
0.5
Hardness (g)
Adhesiveness (g*sec)
Resilience (%)
Cohesiveness (%)
Springiness (%)
Chewiness (g)

FIG. 8

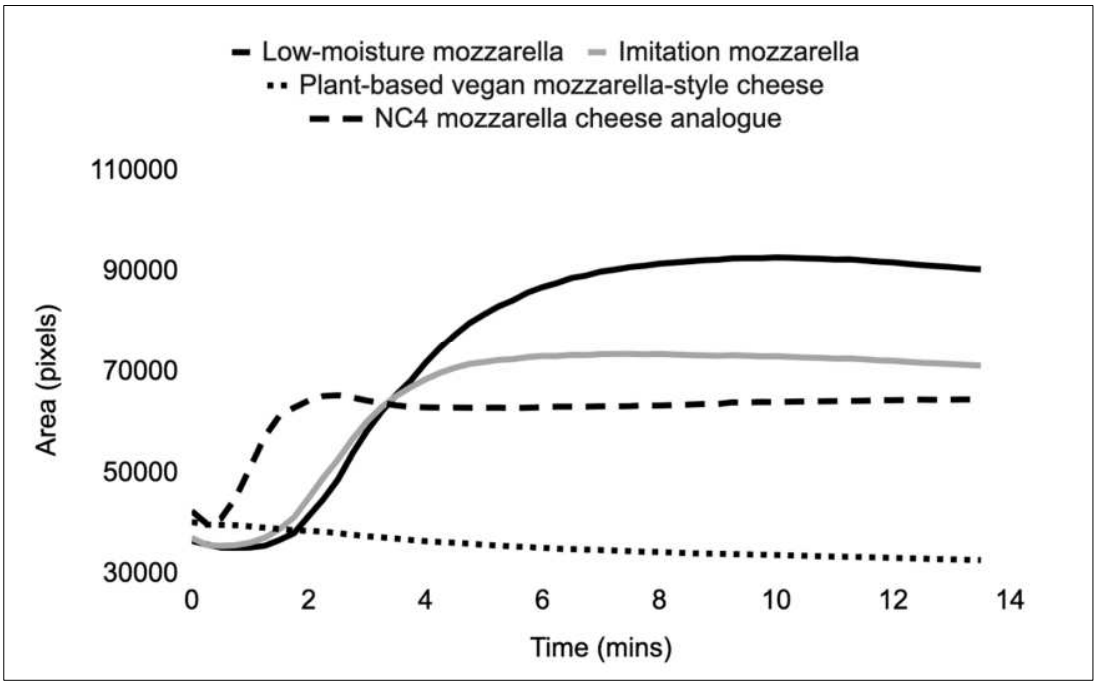

Low-moisture mozzarella
Imitation mozzarella
Plant-based vegan mozzarella-style cheese
NC4 mozzarella cheese analogue
110000
90000
70000
50000
30000
Area (pixels)
0
2
4
6
8
10
12
14
Time (mins)

FIG. 9


Work to Extend (g*sec)
Distance to Failure (mm)
400
300
200
100
0
g*sec or mm
Low-moisture mozzarella
Imitation mozzarella
Plant-based vegan mozzarella-style cheese
NC4 mozzarella cheese analogue

FIG. 10

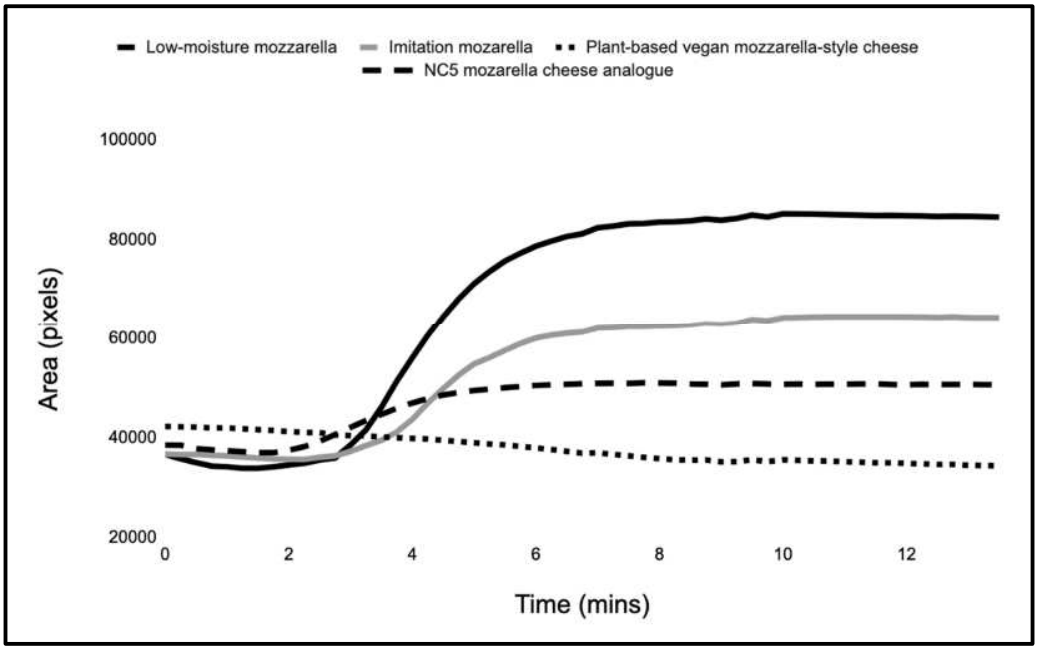

Low-moisture mozzarella
Imitation mozarella
Plant-based vegan mozzarella-style cheese
NC5 mozarella cheese analogue
Area (pixels)
100000
80000
60000
40000
20000
0
2
4
6
8
10
12
Time (mins)

FIG. 11

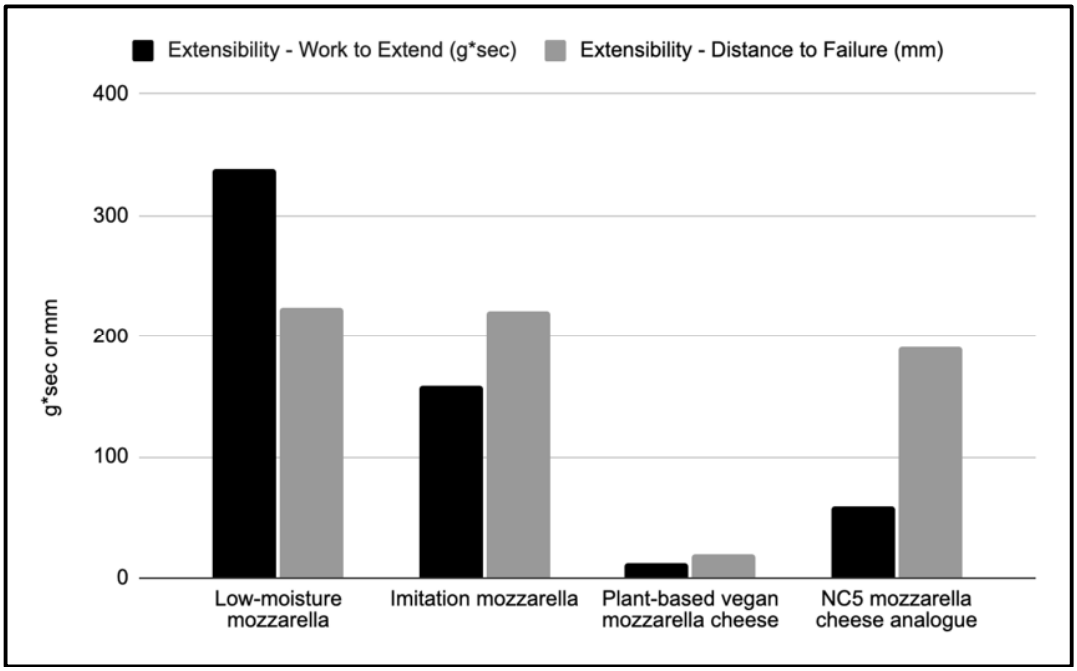

Extensibility - Work to Extend (g*sec)
Extensibility - Distance to Failure (mm)
400
300
200
100
0
g*sec or mm
Low-moisture mozzarella
Imitation mozzarella
Plant-based vegan mozzarella cheese
NC5 mozzarella cheese analogue

FIG. 12

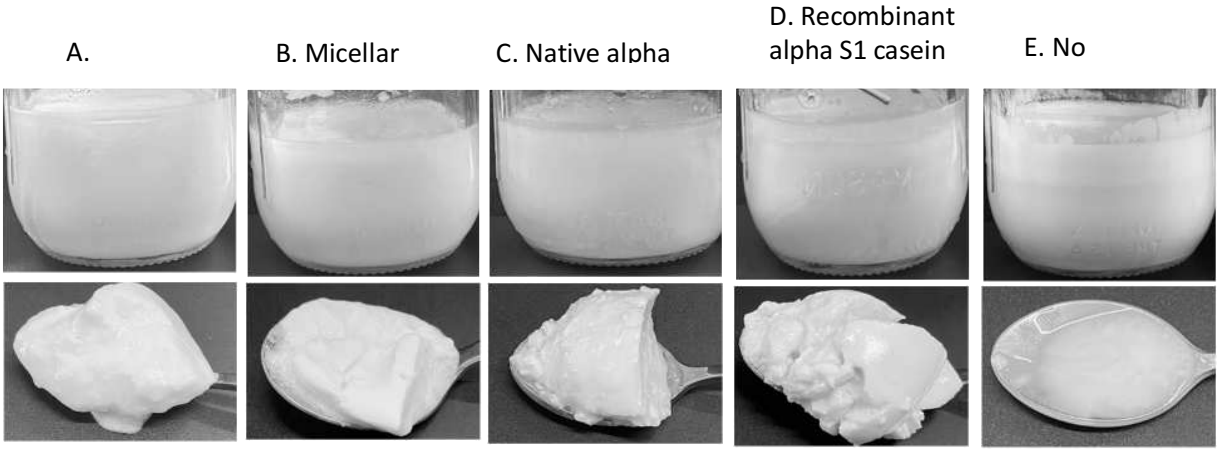

A.
B. Micellar
C. Native alpha
D. Recombinant alpha S1 casein
E. No

FIG. 13

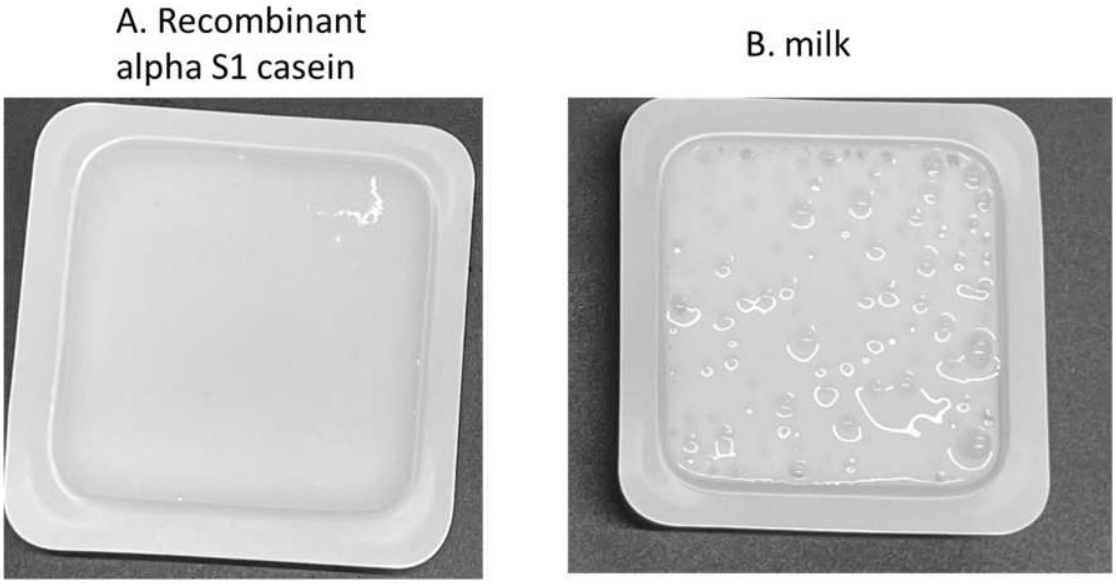

A. Recombinant alpha S1 casein
B. milk

FIG. 14