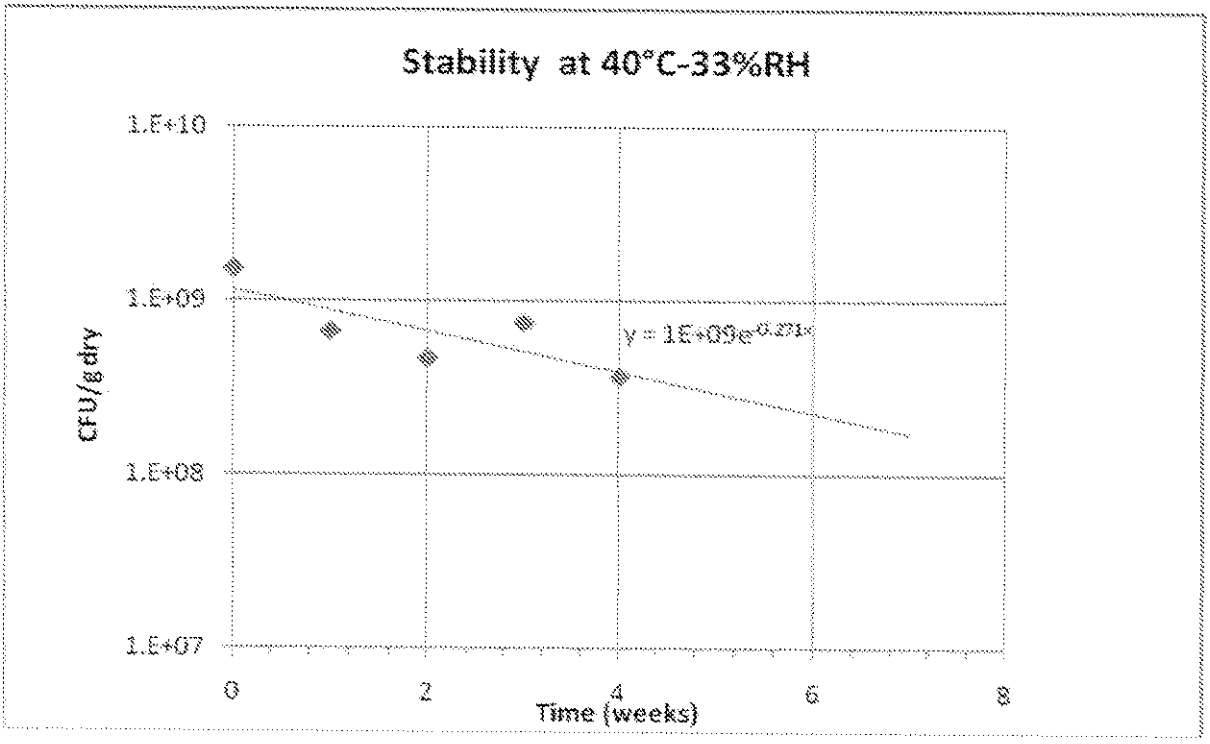

Stability at 40°C-33%RH
1.E+10
1.E+09
1.E+08
1.E+07
CFU/g dry
y = 1E+09e-0.27x
0
2
4
6
8
Time (weeks)

Figure 1

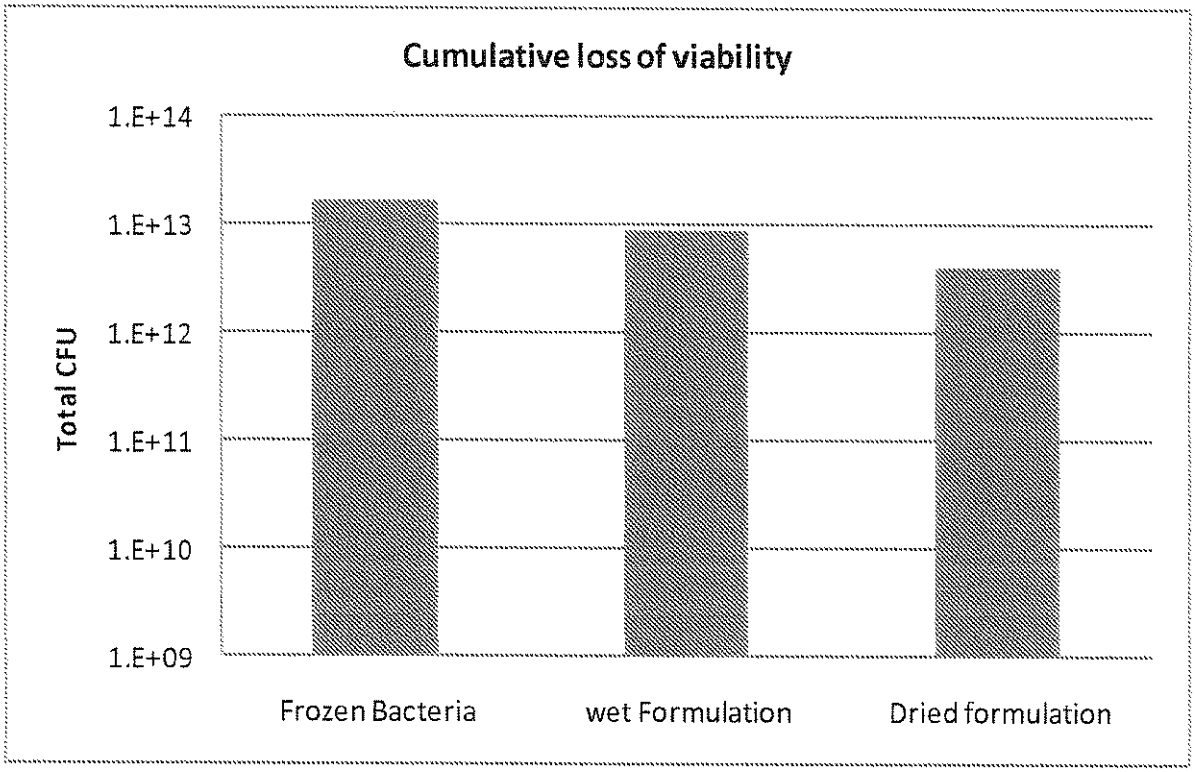

Cumulative loss of viability
1.E+14
1.E+13
1.E+12
1.E+11
1.E+10
1.E+09
Total CFU
Frozen Bacteria
wet Formulation
Dried formulation

Figure 2

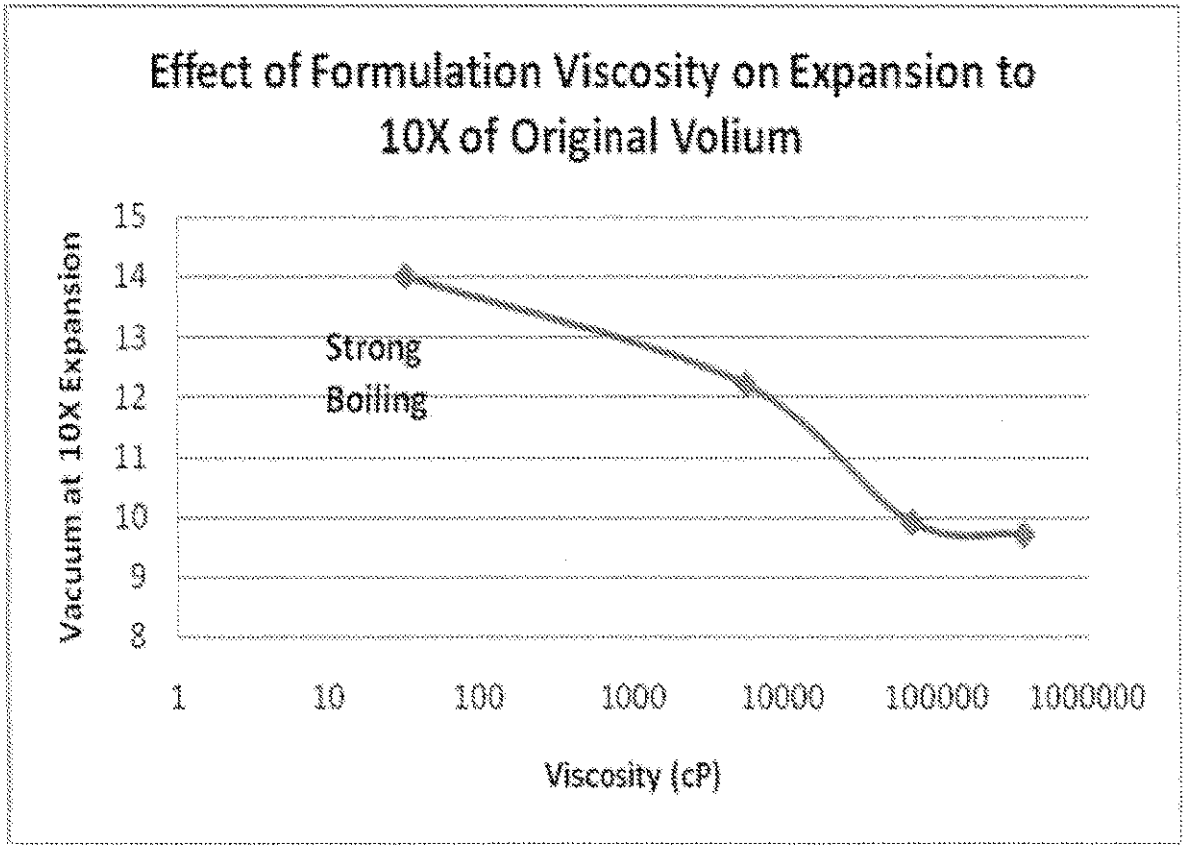

Effect of Formulation Viscosity on Expansion to 10X of Original Volium
Vacuum at 10X Expansion
15
14
13
12
11
10
9
8
Strong Boiling
1
10
100
1000
10000
100000
1000000
Viscosity (cP)

Figure 3

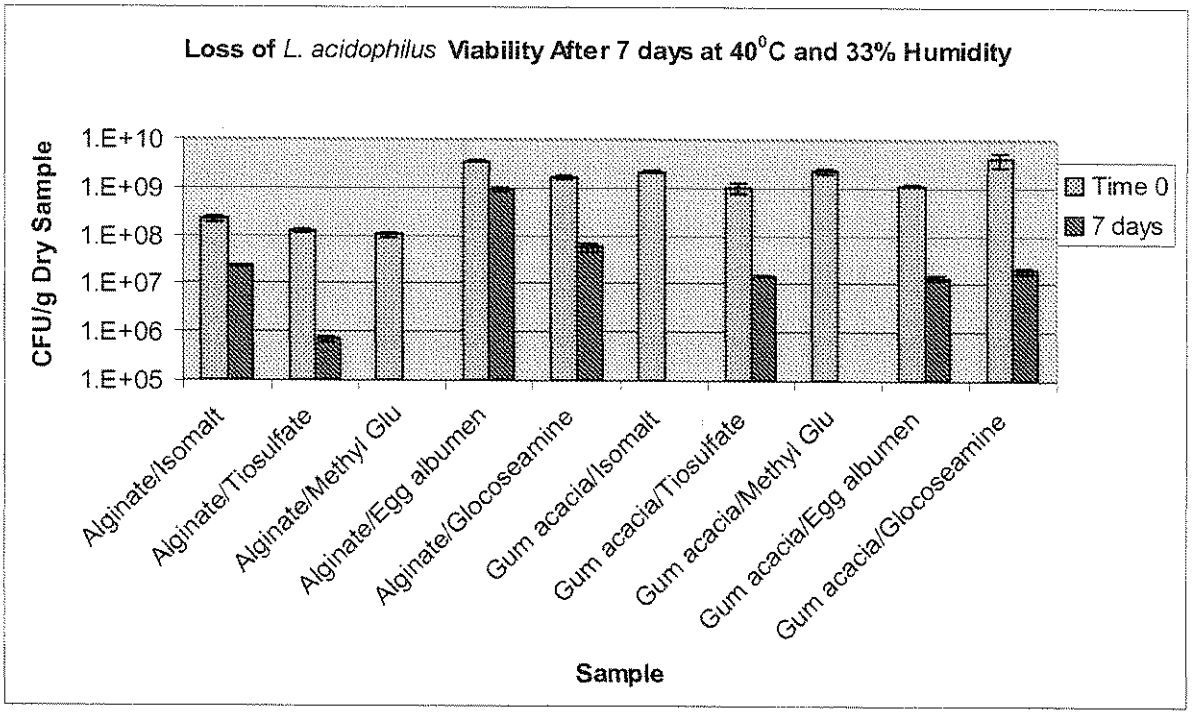

Loss of L. acidophilus Viability After 7 days at 40°C and 33% Humidity
CFU/g Dry Sample
1.E+10
1.E+09
1.E+08
1.E+07
1.E+06
1.E+05
Time 0
7 days
Alginate/Isomalt
Alginate/Tiosulfate
Alginate/Methyl Glu
Alginate/Egg albumen
Alginate/Glocoseamine
Gum acacia/Isomalt
Gum acacia/Tiosulfate
Gum acacia/Methyl Glu
Gum acacia/Egg albumen
Gum acacia/Glocoseamine
Sample

Figure 4

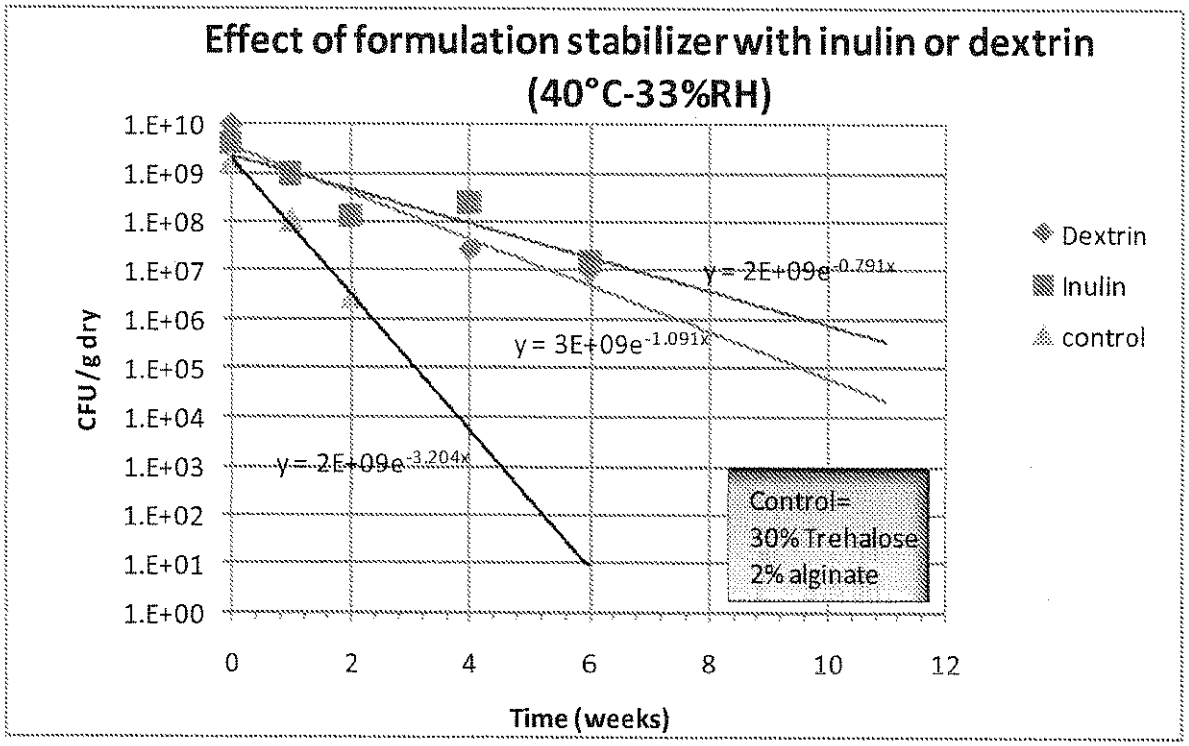

Effect of formulation stabilizer with inulin or dextrin
(40°C-33%RH)
1.E+10
1.E+09
1.E+08
1.E+07
1.E+06
1.E+05
1.E+04
1.E+03
1.E+02
1.E+01
1.E+00
CFU/g dry
0
2
4
6
8
10
12
Time (weeks)
y = 2E+09e-0.791x
y = 3E+09e-1.091x
y = 2E+09e-3.204x
Control=
30% Trehalose
2% alginate
Dextrin
Inulin
control

Figure 5

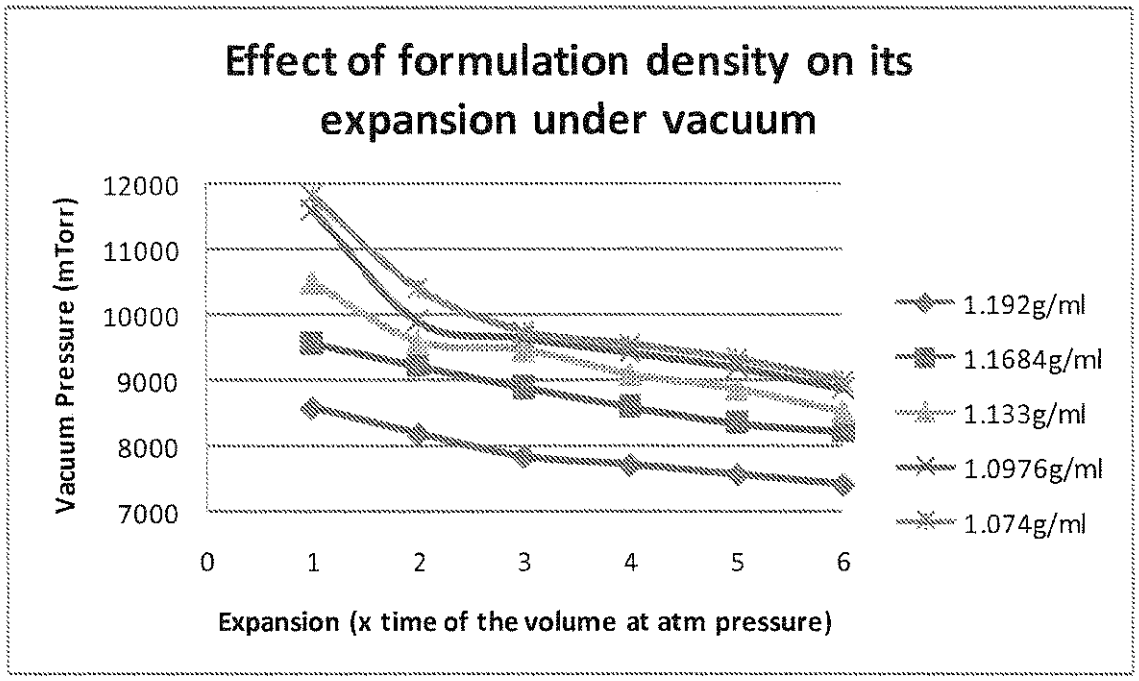

Effect of formulation density on its expansion under vacuum
Vacuum Pressure (mTorr)
12000
11000
10000
9000
8000
7000
0
1
2
3
4
5
6
Expansion (x time of the volume at atm pressure)
1.192g/ml
1.1684g/ml
1.133g/ml
1.0976g/ml
1.074g/ml

Figure 6

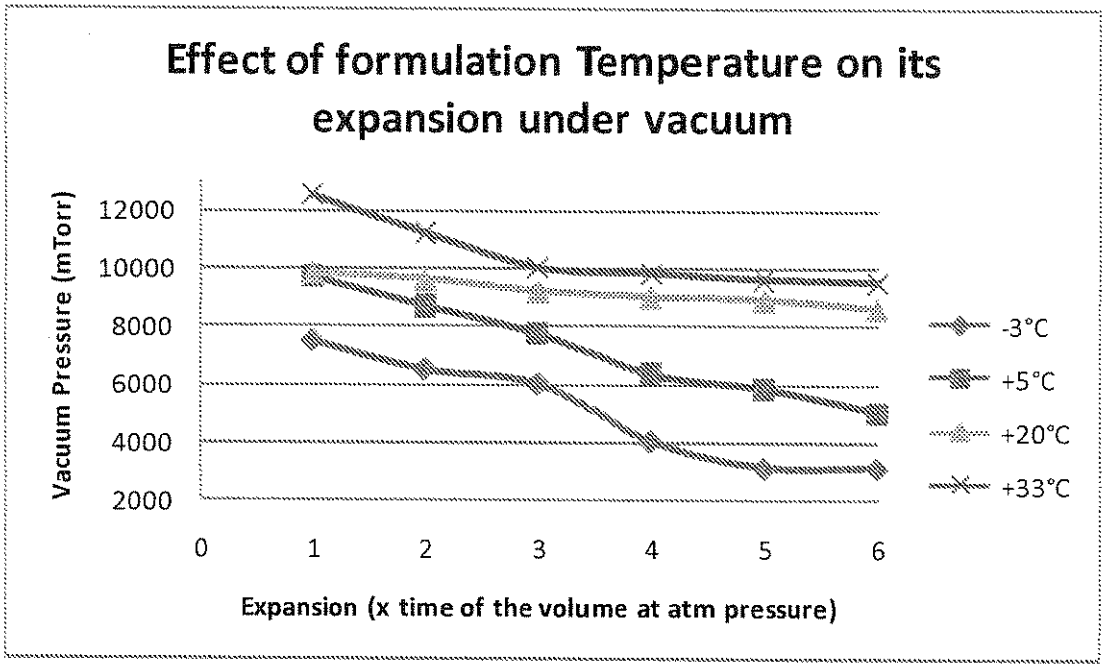

Effect of formulation Temperature on its expansion under vacuum
Vacuum Pressure (mTorr)
12000
10000
8000
6000
4000
2000
0
1
2
3
4
5
6
Expansion (x time of the volume at atm pressure)
-3°C
+5°C
+20°C
+33°C

Figure 7

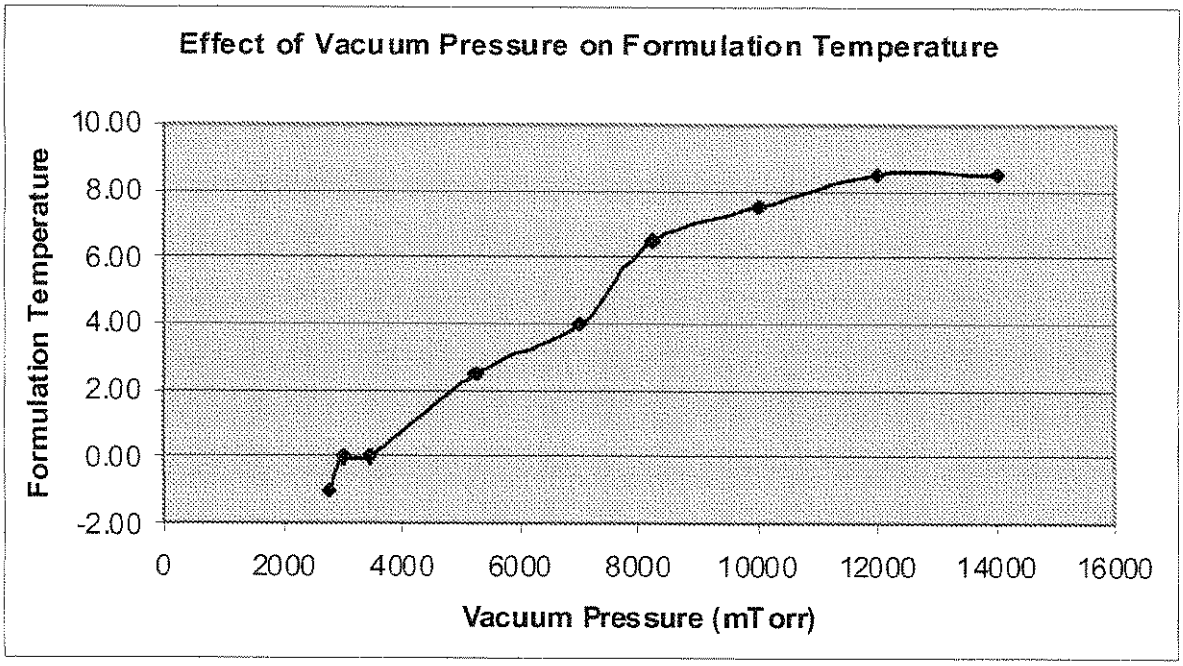

Effect of Vacuum Pressure on Formulation Temperature
Formulation Temperature
10.00
8.00
6.00
4.00
2.00
0.00
-2.00
0
2000
4000
6000
8000
10000
12000
14000
16000
Vacuum Pressure (mTorr)

Figure 8

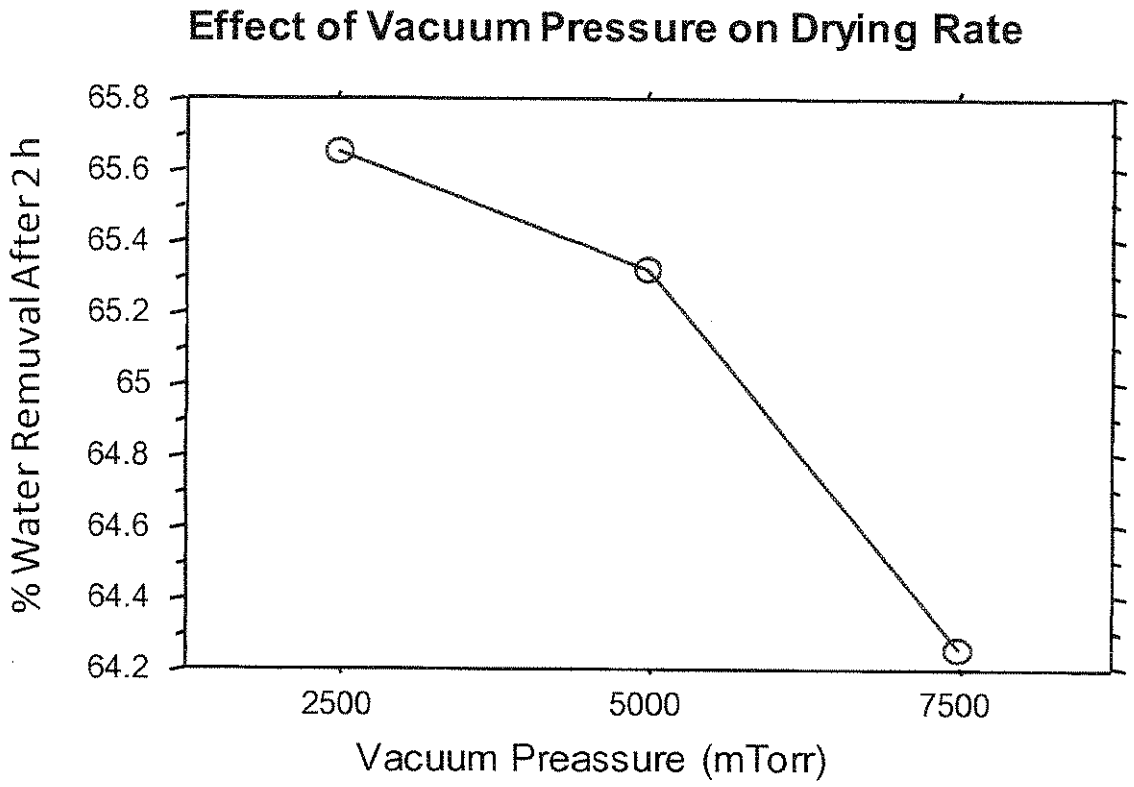

Effect of Vacuum Pressure on Drying Rate
% Water Remuval After 2 h
65.8
65.6
65.4
65.2
65
64.8
64.6
64.4
64.2
2500
5000
7500
Vacuum Preassure (mTorr)

Figure 9

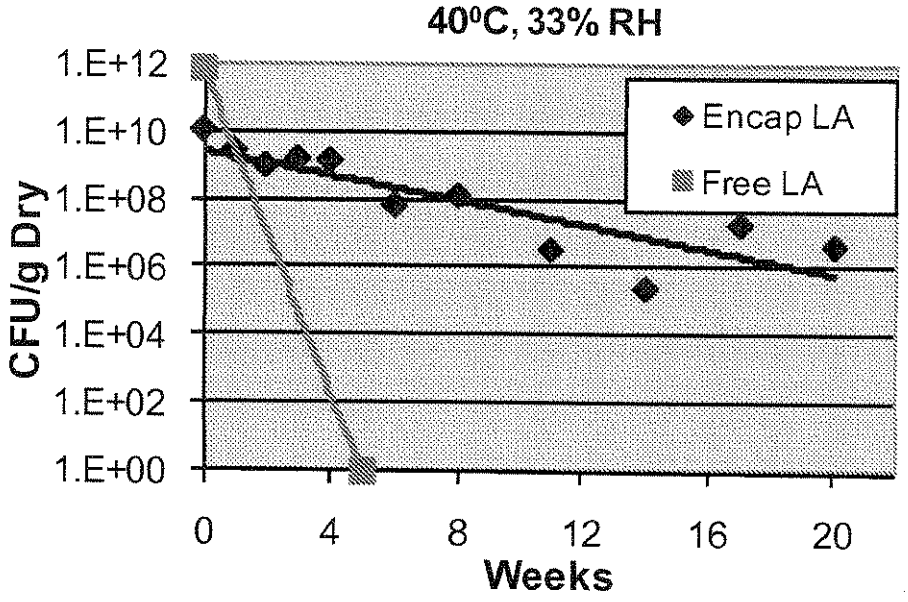

40°C, 33% RH
1.E+12
1.E+10
1.E+08
1.E+06
1.E+04
1.E+02
1.E+00
CFU/g Dry
0
4
8
12
16
20
Weeks
Encap LA
Free LA

Figure 10

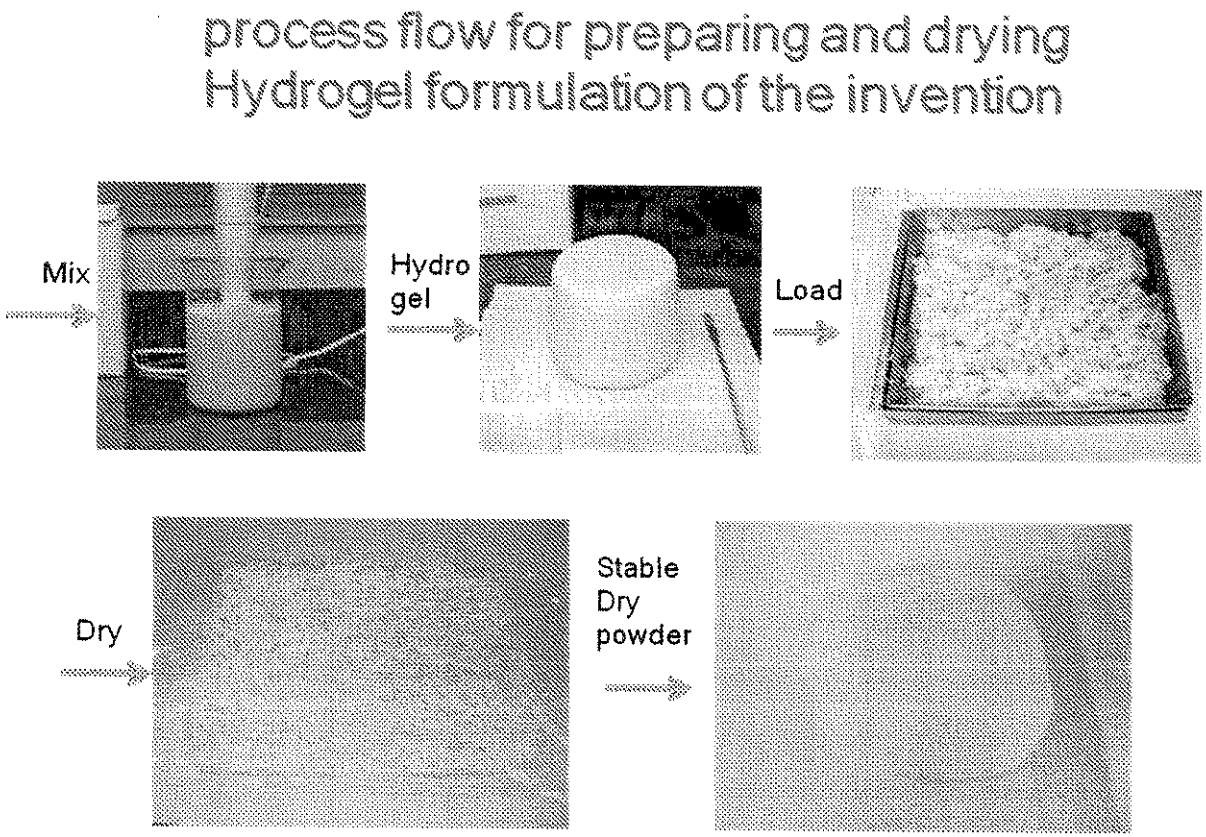

process flow for preparing and drying
Hydrogel formulation of the invention
Mix
Hydro
gel
Load
Dry
Stable
Dry
powder

Figure 11