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(54) Title: DRY STORAGE STABILIZING COMPOSITION FOR BIOLOGICAL MATERIALS

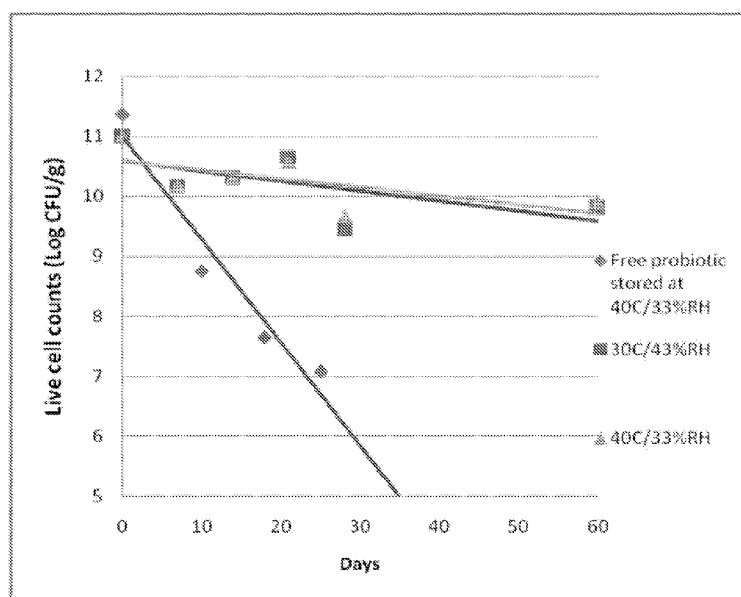


Figure 1

dry material.

(57) Abstract: The present invention includes compositions and drying methods for preserving sensitive bioactive materials, such as peptides, proteins, hormones, nucleic acids, antibodies, drugs vaccines, yeast, bacteria (probiotic or otherwise), viruses and/or cell suspensions, in storage. The compositions include a carbohydrates component and a glass enhancer component, wherein the carbohydrate component includes a mixture of di-, oligo- and polysaccharides and the glass enhancer includes ions of organic acid and protein hydrolysates. The composition is prepared by dispersing all the solid components in a solution and then snap-frozen to form small beads, strings or droplets. The preferred drying method of the frozen beads, strings or droplets is initiated by a short purging and structure stabilizing step of the frozen particles under a vacuum pressure of less than <2000 mTorr followed by a primary drying step under vacuum pressure of more than >2000 mTorr and at a desired temperature. During the secondary and final drying step of the material a full vacuum pressure and elevated temperature are applied, to achieve a final desirable water activity of the