The effect of freezing on viscoelastic behaviour of whey protein concentrate (WPC) suspensions with maltodextrin 1% (p/v) and sugar 15% (p/v), (sucrose or glucose) was studied. Suspensions with total protein content of 6% and 9.5% w/v were prepared from a commercial WPC, 35% (unheated suspensions). Suspensions were treated at 72.5 °C of temperature during selected times to obtain soluble protein aggregates. A group of suspensions were stored at 4 °C other groups were frozen at -18 °C and thawed immediately and after 30 days frozen and then both groups stored at 4 °C. Frequency sweeps (0.01–10 Hz) were performed in the region of linear viscoelasticity with a deformation of 3% at 25 °C in a rheometer RheoStress 80 (Haake Inc. Instruments, Karlsruhe, Germany) with a cone and plate geometry test fixture. Elastic (G’) viscous (G’’) and complex G* moduli were obtained. Mechanical spectra of all studied suspensions were similar to viscoelastic fluids and a solid-like behaviour was visualized (G’ > G’’) in all samples. The complex modulus at different frequency were modeled using power law equations $G^*(\omega) = a\omega^b$, using fitted parameters a, and b, for statistical analysis. Exponent “b” was ranged between 0.10 ± 0.01, and the coefficient “a” ranged between 200 y 320 Pa but the variations of these values of WPC suspensions with maltodextrin after freezing and storage at different conditions were not statistically significant. Therefore the rheological measurements in the conditions used did not show statistics difference for the suspensions after freezing and storage. It is possible that morphological changes with freezing did not produced modifications in the rheological parameters.