Introduction and objective: Hydrogels possess a tridimensional polymeric network capable of absorbing high amounts of water and biological fluids. These absorbing properties allow for a widespread number of applications in different biotechnological and medical areas. In this work we developed and performed a rheological characterization of a new hydrogel based on a galactomannan from *Cassia grandis* seeds and a κ-carrageenan from red alga. 

**Material and methods:** The hydrogels were prepared in aqueous medium with 1.7% (w/v) galactomannan and different concentrations of κ-carrageenan (0.3, 0.4 and 0.5% w/v), CaCl$_2$ (0.0, 0.1 and 0.2 M) and at distinct pH (5.0, 5.5 and 6.0) as independent variables of a full factorial design $2^3$. In order to define the best composition based on rheological parameters, the hydrogels were analyzed by strain, frequency and temperature sweep experiments. Also, a shelf life study was carried out with the best formulation along 90 days-period, evaluating pH, color, microbial contamination, rheology and electron microscopy.

**Results and conclusions:** According to the results, it was possible to obtain a stable hydrogel composed by 1.7% (w/v) of galactomannan and 0.5% (w/v) of κ-carrageenan, with 0.2 M of CaCl$_2$ at pH 5.0. This hydrogel showed no significant changes in pH and no microbial contamination, but became less opaque and more translucent in the end of 90 days. The rheological test verified a higher organization of the hydrogel matrix over the experimental time with the elastic modulus always superior to the viscous modulus. The microscopic matrix organization of the hydrogel showed a macropores architecture with a rough surface. The pore matrix interconnection of the hydrogel allows for easy flow of biomolecules. This sponge like characteristic could be useful in tissue engineering applications. These results showed that this hydrogel has good and stable physical properties with potential application in medical and cosmetic industries. **Acknowledgments:** CAPES, CNPq. **Keywords:** hydrogel, rheology, vegetal polysaccharide.