The rheological measurements are considered as an analytical tool which provides a better understanding of the structural organization of the food. Knowledge of the rheological behavior of food is useful in quality control, determination of shelf life, correlation with sensory evaluation, definition of the microstructure and applications in process engineering. The aim was to study the rheological properties of fermented milk and to characterize its behavior by adjusting the rheological models. For the experiment was analyzed fermented milk of five different brands. Rheological measurements were made at 25 °C using a rotational rheometer concentric cylinder, the small sample adapter and the coaxial shear sensor. The samples were subjected to a ramp of increasing shear rate, this ramp linearly varied from 0.013 to 22.453 (s⁻¹) for 8 minutes 50 seconds the test for analysis were taken 17 points. The experimental data were fitted to rheograms rheological Ostwald-de-Waele, Herschel-Bulkley, Mizrahi & Berk and Casson. The values were submitted to ANOVA and Tukey's test, with confidence level (5%) for comparison of means. The rheological parameters for Herschel-Bulkley model were calculated using the values of shear stress and shear rate. The model adequately described for the rheological behavior of fermented milk was the Herschel-Bulkley model. There was a pseudoplastic behavior for all fermented milks (n <1), no significant difference (p <0.05) between samples.

*Acknowledgements: FAPEMIG for financial support.