Cream is the main raw material for the butter production and reflects its properties into butter quality. Maturation of cream with appropriate starter culture is important for butter quality, sensory properties and shelf life of the end product. Kefir grains contain important probiotics for healthy nutrition including lactic acid bacteria, acetic acid bacteria, and yeasts in high numbers. The aim of this research was to determine the properties of butter produced using natural kefir culture during a 21-day cold storage. Determination of microbial, chemical and sensory properties of butter samples was carried out. Control sample (KOTE) had 6.64 log CFU g⁻¹ Lactococcus spp. while kefir cultured butter samples had 8.58 log CFU g⁻¹. Kefir cultured butter contained 5.24 log CFU g⁻¹ L. acidophilus at Day 1, while control samples did not have L. acidophilus. Acetaldehyde content of kefir cultured butter was significantly higher from the uncultured butter. According to sensory evaluation performed by 12 panelists, KKTE samples had better sensory properties than those observed in the KOTE samples.