This study investigates the effect of flaxseed oil towards physicochemical and sensory properties of reduced fat ice creams and its stability in ice-creams upon storage. Three formulations, (F1, F2, F3) were developed by substituting milk fat with flaxseed oil at levels of 2.5%, 5.0% and 7.5%, (w/w) respectively. Samples were subjected to sensory evaluation and analyses such as meltdown, titratable acidity, pH, total solids, protein and fatty acids composition. Incorporation of flaxseed oil into ice-cream showed no effects on physicochemical properties of the ice-creams. However, it increased the colour of ice-cream towards yellowness, decreased the sweetness, smoothness and creaminess. Flaxseed oil incorporation also slightly (P < 0.05) decreased the acceptance level of aroma, flavour, texture and overall acceptability of formulated icecreams. The most acceptable level of flaxseed oil substitution is at 2.5 %. Gas chromatography analysis showed that fatty acids slightly decreased upon storage.