Shelf-life study is a crucial step of product development since it indicates safety, acceptable sensory characteristics, and microbiological properties with proclaimed nutritional values when the product is kept in the recommended condition. It can be predicted by using both sensory measurement and physical measurement. Sensory evaluation measure product through the human senses, whereas the physicochemical measurement using equipment to judge the product. Mochi ice cream is a frozen dessert product which produced from short-grain glutinous rice and stuff with ice cream. In Thailand, there is a limited information on the multi-phase product like mochi ice cream. This study is aimed to study the sensory properties, physical properties of mochi ice cream and the correlation between sensory properties and physical properties of mochi ice cream. 50 consumers were performed the consumer surveys by answering questionnaire about mochi ice cream in shopping complex. Mochi ice cream samples stored in a freezer at difference temperatures (-5°C, -10°C and -20°C) and sampling every 3 days at-5°C, -10°C and 5 days at -20°C. For sensory measurement, descriptive analysis was performed by 8 trained panelists generated attributes and evaluated using intensity score between 0-15. For sensory measurement, texture profile analysis (TPA) and tensile strength were performed by using texture analyzer (TA-XT plus, Charpa Techcenter Co.,Ltd). The results from both measurements were performed ANOVA, t-test and Dunnett’s test (a=0.05) from SAS 9.3. Moreover, results from sensory and physical measurement were performed correlation by principal component analysis. Consumer survey showed that mochi ice cream consumption was less than one time per month. Also, this product still low popular due to small number of mochi ice cream shops in Thailand is found. In sensory measurement, longer of mochi ice cream storage caused lower intensity of softness and gumminess from mochi phase of mochi ice cream and significant difference from control. It also affected to the hardness, tensile strength, fracturability, adhesiveness, springiness, cohesiveness, gumminess, and chewiness from texture analyzer that showed significantly decreased from control. Some attributes from sensory measurement had correlated to the attributes from physical measurement. The Arrhenius equation from mochi ice cream from three different temperatures was \( \ln k = -7066.32 \times (1/T) + 24.01 \) and the prediction equation was “Day of storage = 2457.1749 [1/(C+273)] – 6.2195” Therefore, temperature and time of storage had affect to the quality of mochi ice cream in both physical properties and sensory properties. It had the potential to be applied in mochi ice cream development in the future.

Keywords: shelf life, mochi ice cream, sensory measurement, physical measurement