

## ABSTRACT

Plant-based burgers are considered as the meat alternatives. Attaining a firmer texture with juicy burgers is still the biggest problem in the development of plant-based burgers. Pre-emulsified fats are often incorporated to achieve the desired characteristics. Storage conditions such as chilling and freezing are often used to prolong the shelf-life of food. The aim of this study is to investigate the change of physicochemical properties of plant-based burger with soy protein isolate (SPI) and methylcellulose (MC) addition into fat emulsion and stored in 24 hours chilling and 24 hours freezing conditions. Phase one of this study assessed the emulsion properties of different concentrations of SPI and MC, which were emulsion stability and water-absorbing capacity. The highest value in emulsion properties, which were 4% SPI & 3% MC, 8% SPI & 1.5% MC, and 8% SPI & 3% MC were selected to be included into the plant-based burgers development. In the second phase, the plant-based burgers with different emulsions were stored in a chill or frozen temperature conditions for 24 hours. Plant-based burger with 4% SPI & 3% MC showed the least cooking loss and hardness compared to other treatment groups. The moisture content of all treatment groups is not significantly different ( $p > 0.05$ ). 24 hours chilling and 24 hours freezing conditions did not significantly affect the physicochemical properties of plant-based burgers. Plant-based burger with 4% SPI & 3% MC in fat emulsion had lower cooking loss, hardness, and springiness.