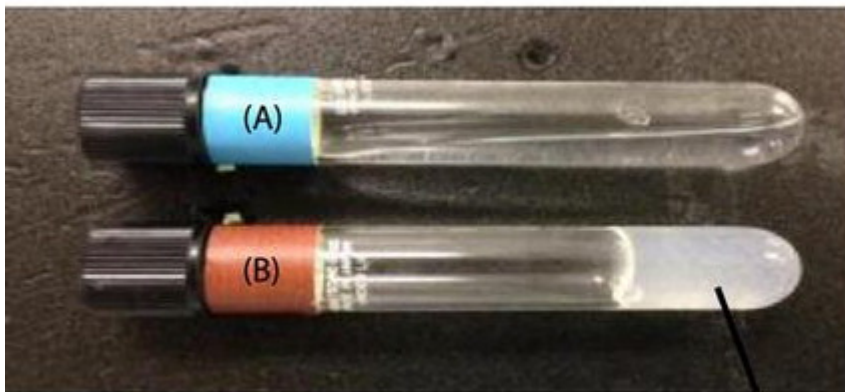


We examined a methylcellulose (MC) formulation that gels at body temperature for enteral alimentation. Betaine was found to have a lowering effect on the gelation temperature of the MC solution. The thermal gelation temperature of a body heat-responsive (BHR) gelling MC formulation, consisting of 2% MC, 15% glucose, 1.2% sodium citrate, and 3.5% betaine mixture, was approximately 32 °C, indicating that it could gel in response to body heat. Glucose release from the BHR gels was delayed at 37 °C in an *in vitro* study. In rats, oral administration of BHR gelling MC formulation delayed an increase in blood glucose and appearance of $^{13}\text{CO}_2$ in expired air in a ^{13}C -acetate breath test in comparison with the control. These results suggested that the BHR gelling MC formulation was gelled in the stomach and delayed gastric emptying after oral administration and glucose in the gels was absorbed slowly.

A clear viscous liquid of BHR gelling MC formulation formed a cloudy soft gel after incubation (5 min, 37 °C), indicating that the formulation would form a gel at body temperature.

Control solution (A) : 2 % MC solution contained 15 % glucose



The BHR gelling MC formulation (B)

a cloudy soft gel