Optimization of glutinous rice (Chal-bap) prepared by sous-vide and cook/chill system, and its quality evaluation.

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Rice is one of the most important foods in Korea. Cooked glutinous rice (Chal-bap) is a popular Korean traditional meal. This healthy food is made with glutinous rice, chinese date, ginkgo nuts, chestnuts, red beans, pine nuts, walnuts and so on. Sous-vide, widely used RTE foods technique, can be described as the cooking of raw materials under controlled conditions of temperature and time, inside heat-stable vacuumized pouches. After heating, it is rapidly cooled down to 0~3 °C. This technique offers microbiological safeties, sensory benefits and conveniences.

This study was conducted to optimize the nutritious cooked glutinous rice using sous-vide cook and to examine the cooking quality, sensory evaluations, textural properties (hardness, fracturability, adhesiveness, springiness, cohesiveness), aroma components, transverse structures, water activities of it. Optimization was carried out by response surface methodology (RSM): two independent variables selected for the RSM were water volume ratio (X1), cooking times (X2). Six sensory attributes such as gloss, color, glutinousness, flavor, taste, and overall acceptability were used for dependent variable. Optimum preparation conditions for cooked glutinous rice were water volume ratio 0.42, cooking time 55.85min at cooking temperature 90°C. Texture profile analysis of experimental group showed a lower score of adhesiveness, springiness, fracturability and cohesiveness.