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報 文

## 菓子製造工程における難消化性でんぷんの損失抑制

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Loss-Resistance Conditions of Resistant Starch in the Confectionery Process

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This study was conducted to investigate the characteristics of resistant starch (RS) included in red kidney beans to utilize as health functional material and to develop a processing technique for functional snacks. As for the characteristics of RS included in red kidney beans, RS decreased during the confectionery process, and it was suggested that the processing conditions (heating temperature, heating time, etc.) influence the decrease of RS. The results of an experiment on processing conditions showed that heating temperature, heating time and moisture had a great effect on the decrease of RS. There was a tendency for RS to decrease more with higher temperatures, longer heating times and greater moisture content. In addition, RS was significantly increased by preserving heated beans at low temperatures of less than 4°C. In the method of producing baked snacks, conditions to restrain the decrease of RS and hold RS to more than 14% were achieved using the above results. The decrease of RS was restrained in both a cookie and sponge cake that were produced using the above conditions, and the cookie RS exceeded 14%. Autoclave treatment for beans at 121°C for 60 minutes could increase RS for functional food, and it revealed the effectiveness of high-temperature heat-moisture treatment with respect to the increase in RS. This study clarified the conditions to restrain the decrease of RS and a processing technique for functional snacks was developed using those conditions.

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