

Oral presentation | B 食品機能 (Food Function)

📅 Fri. Aug 29, 2025 9:00 AM - 11:00 AM JST | Fri. Aug 29, 2025 12:00 AM - 2:00 AM UTC 🏢 Room C(2F 123)

[3Ca01-08] 食品機能 脂質、コレステロール調節、認知機能

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9:15 AM - 9:30 AM JST | 12:15 AM - 12:30 AM UTC

[3Ca02] Effects of Roasted Brown Rice Coffee on Lipid Metabolism in Rats Fed a High-Fat and High-Cholesterol Diet

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Keywords : Roasted brown rice、Dietary fiber、Bile acid、Lipid metabolism、Rats

【Objective】 The rising prevalence of lifestyle-related diseases, particularly dyslipidemia—a key risk factor for cardiovascular disease—poses a major health issue. This study focused on roasted brown rice coffee (RBR), produced by roasting and powdering brown rice. RBR contained rich dietary fiber and has antioxidant and bile acid-binding capacity *in vitro*, but its effects remain unclear *in vivo*. This study aimed to investigate the effects of RBR on lipid metabolism in rats.

【Methods】 Six-week-old male SD rats were fed for 8 weeks with one of the following diets: a high-fat and high-cholesterol diet (HF; AIN-93G + 20% lard + 1% cholesterol), the same diet with precooked brown rice powder (BR), or with RBR powder (RBR), an equal amount of dietary fiber content. Rats were pair-fed, with ad libitum water. Feces were collected during the final 3 days for bile acid measurement.

【Results】 Total amount of food intake did not statistically significant among groups. However, the RBR group showed significantly suppressed weight gain compared to the BR group during weeks 4–7. Both BR and RBR groups exhibited reduced hepatic hypertrophy and significantly lower hepatic lipid, and lipid peroxidation levels compared to the HF group. Fecal bile acid excretion was significantly higher in the RBR group, suggesting enhanced bile acid excretion via soluble fiber. No significant improvements were observed in final body weight, adipose tissue weight, serum lipids, AST/ALT levels, hepatic TG and TC levels. These findings indicate that RBR may promote bile acid excretion and suppress weight gain and hepatic lipid accumulation, though longer or higher intake may be needed for systemic lipid improvements.