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Development of rice product promising prevention of diabetes and dementia: A review**Ken'ichi Ohtsubo***Niigata University of Pharmacy and Applied Life Sciences, Japan*

Statement of the problem: Diabetes is a lifestyle disease, and its prevention and treatment are extremely important. According to IDF (International Diabetes Federation) report, globally, an estimated 537 million adults were living with diabetes in 2021. And Alzheimer's disease (AD) is the most common form of dementia and may contribute to 60-70% of cases with dementia. Dementia is currently the seventh leading cause of death among all diseases and one of the major causes of disability and dependency among older people globally [2]. As it has been reported that type-2 diabetes increased the risk of Alzheimer disease, it is necessary to prevent diabetes and dementia by the functional foods.

Methodology & theoretical orientation: We adopted super-hard brown rice (SHBR) for diabetes and wax-free black rice (WFBR) for dementia and blended with ordinary brown rice (KBR) (blending ratio; 4:4:2) added with 2.5 % waxy black rice bran (WBB) and 0.3 % rice oil after the high-pressure treatment (HPT) (WFBSK) for the sake of improving palatability. This cooked rice product is rich in dietary fiber, antho-cyanin, free ferulic acid and β - secretase inhibitory activity. A randomized, parallel-group comparison study was conducted using 24 subjects using Cognitrix to evaluate cognitive function in primary purpose. Furthermore, for the secondary purpose, we performed single-dose test for postprandial blood glucose and insulin secretion.

Findings / Results: After subjects consumed these diets for 12 weeks, consumers of the WFBSK rice exhibited significant improvement in language memory by cognitive test battery compared with those after ingesting control white rice ($p < 0.05$). Moreover, subjects who consumed the WFBSK rice had lower insulin secretion levels than those after ingesting control white rice ($p < 0.05$).

Conclusion: It seems that our results are one of the first examples of which effects to prevent diabetes and dementia were shown as a foodstuff itself like cooked rice, not as a specified functional component or its extracts.

Biography

Ken'ichi Ohtsubo is a professor at Niigata University of Pharmacy and Applied Lifesciences. He worked as a researcher of National Food Research Institute, Japan, for 27 years since 1981. He moved to Niigata University and continued the research on rice quality and utilization. He published more than 200 scientific papers on rice quality and utilization, etc.