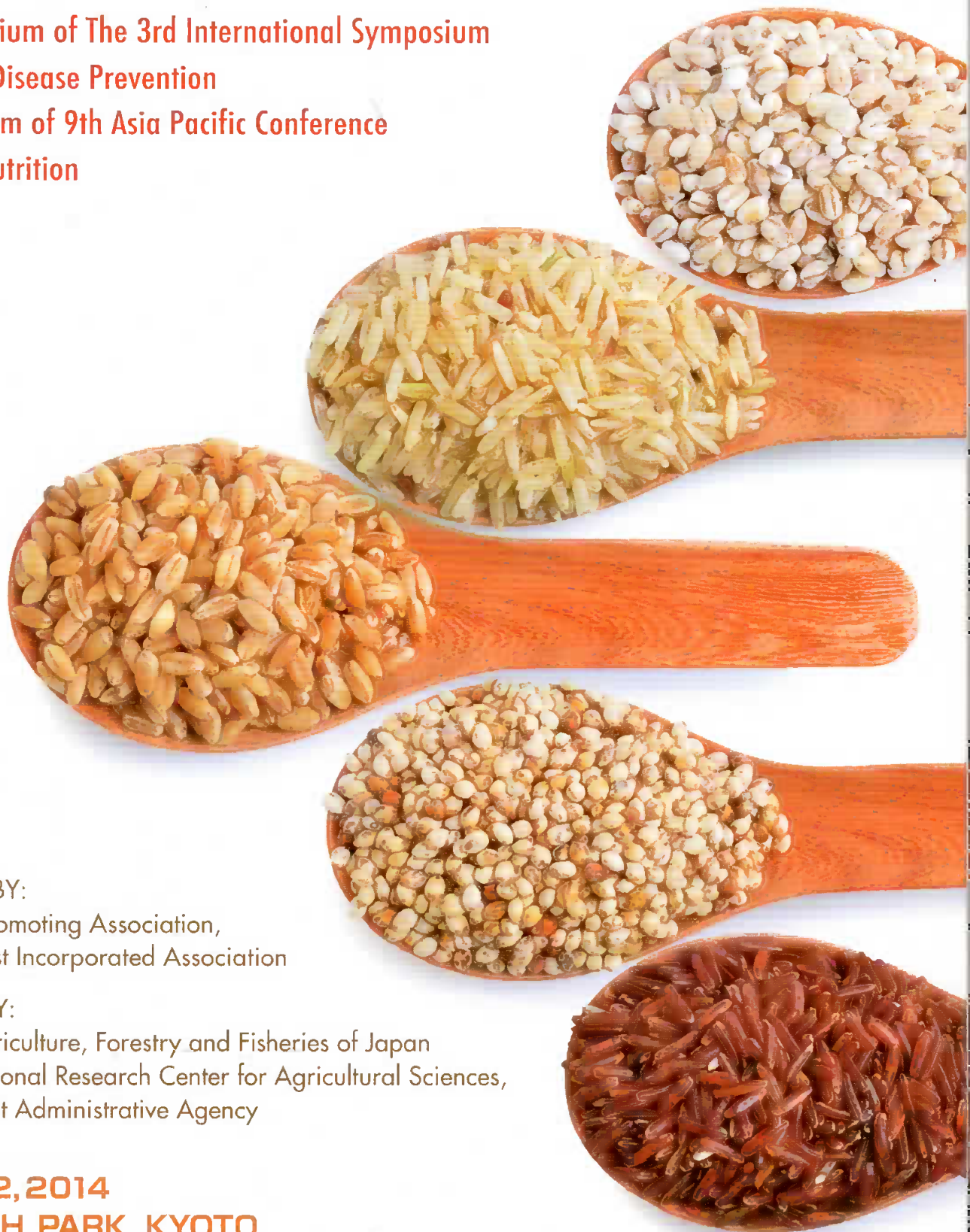


Proceedings and Abstracts



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Adenosine is an active compound from Driselase-treated fraction of rice bran can improve metabolic-diseases parameters in SHRSP

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Rice bran is a by-product derived from the outer layer of the rice grain and it contains various active compounds which have beneficial effects on human. The aim of this study was to identify the effect of dietary supplementation of rice bran treated with Driselase (DF)—a mixture of plant cell wall-degrading enzymes including cellulases, xylanases, and laminarinases—on metabolic-diseases parameters in stroke-prone spontaneously hypertensive rats (SHRSP). Male 4-week-old rats were divided into control group fed based on AIN-93M diet, and the other two groups were fed diet supplemented with DF and ethanol fractions of rice bran.

After 8 weeks feeding, supplementation the DF of rice bran had protective effects against hypertension, hyperglycemia, and hyperlipidemia parameters. By NMR analyses, the active compound was identified as adenosine, and it improved hypertension and the plasma triglyceride, glucose, and nitric oxide levels after 2 h of single administration. Furthermore, the effects of chronic adenosine administration in SHRSP after high-fat diet intake were studied. Hypertension, hyperglycemia, hyperlipidemia, and insulin sensitivity were significantly improved in the adenosine-fed group.

The mRNA expression levels of genes involved in adenosine receptors were altered in the adenosine groups. Administration of adenosine increased in plasma adiponectin levels, accompanied by upregulation of mRNA expression level of adiponectin and adiponectin receptor 1 in perirenal fat and adiponectin receptor 2 in the liver. In conclusion, DF has beneficial as dietary component to improve metabolic-diseases parameters in SHRSP.