Proceedings of

Humboldt Kolleg:
THE VOICE OF ASEAN RESEARCHERS
in Conjunction with:
INTERNATIONAL CONFERENCE ON NATURAL SCIENCES (ICONS) 2014

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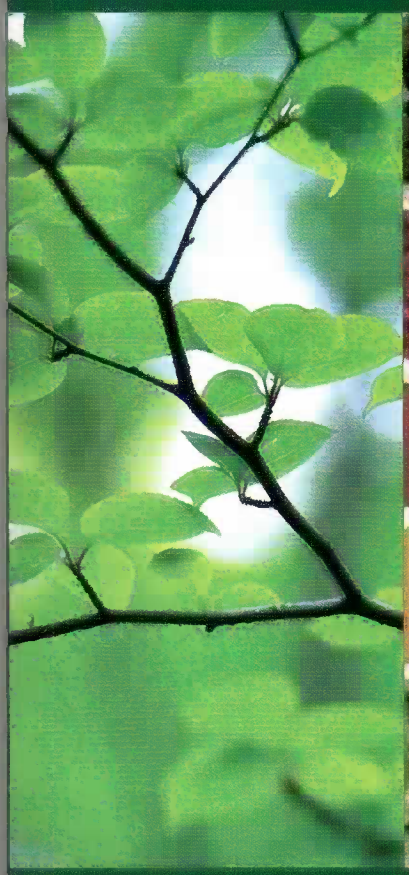


ISSN 1434 - 5536

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Unterstützt von / Supported by

Alexander von Humboldt Stiftung/Foundation

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BIOACTIVITY DRISELASE-TREATED FRACTION OF RICE BRAN TO IMPROVE METABOLIC STATE IN STROKE-PRONE SPONTANEOUSLY HYPERTENSIVE RATS

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Rice bran is a by-product of the rice milling process and it contains various active compounds which have beneficial effects on human health. The purpose of the present 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 syndrome-related parameters in stroke-prone spontaneously hypertensive rats (SHRSP). Male 4-week-old rats were divided into control group fed based on AIN-933M 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 syndrome-related parameters in SHRSP

Keywords: rice bran, driselase fraction, blood pressure, SHRSP