PKA inhibitor which decreased hypertonic stress-induced AQP2 expression. On the other hand, pretreatment with ORS attenuated hypertonic stress-induced cell death. Hypertonic stress-induced Bax or caspase-3 expression was decreased by ORS, resulting in anti-apoptotic effect.

Conclusion: Taken together, the present data suggest that the beneficial effect of ORS in water balance and apoptosis in vitro hypertonic stress of renal collecting ducts.

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The Effects of Chinese Herbal ShenQi Decoction on Hepatic Lipid Accumulation and AKT mRNA Expression in Diabetic KK-Ay Mice

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Purpose: The purpose of this pilot study was to determine the effects of ShenQi Decoction (SQD), a Chinese herbal medicine, on hepatic lipid accumulation and AKT mRNA expression in genetically diabetic KK-Ay mice.

Methods: Male mice were divided into two groups to receive normal diet (ND) or high fat diet (HFD) for 14 weeks with free access to diet. At the 9th to 14th week, the HFD group was then divided into two groups with (HFD+SQD) or without of SQD for 6 weeks. The body weight and fasting glucose level were determined. Moreover, the accumulation of hepatic lipid droplets was determined via hematoxylin and eosin (HE) stain. The hepatic mRNA expression of AKT, which was involved in the metabolic regulation in the liver, was examined by real-time polymerase chain reaction (RT-PCR).

Results: As the results, the fasting blood glucose level and body weight were increased after high fat diet. Compared to the ND, the hepatic AKT mRNA expression and the accumulation of lipid droplets were significantly increased in HFD at the end of the 8th week. After six week-SQD administration, the fasting blood glucose of HFD+SQD was lower than that in HFD. Moreover, SQD significantly decreased the HFD-induced accumulation of lipid droplets and suppressed the HFD-induced AKT mRNA expression in the liver.

Conclusion: The genetic factors are important for the onset of diabetes. However, the proper macronutrient composition of daily diet may facilitate improved blood glucose control. HFD increased blood glucose and hepatic lipid accumulation, which may lead to the progression of diabetes onset in KK-Ay mice. SQD administration decreased the hepatic lipid accumulation may partially due to the hepatic AKT mRNA regulation. We hope that the concepts acquired from the present study will provide a new consideration for treating diabetes via Chinese herbal medicine.

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Molecular identification of Pinelliae Tuber, Arisaematis Rhizoma, and its common adulterants based on the DNA barcode sequences

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Purpose: Official Pinelliae Tuber and Arisaematis Rhizoma have been required to authenticate because of frequent reciprocal substitution between two herbal medicines as well as several closely related inauthentic plant materials. Due to the morphological similarity of dried tubers, however, the correct discrimination of authentic herbal medicines are very difficult to distinguish using conventional methods. Therefore, we introduced the analysis of DNA barcode sequences to distinguish each herbal medicines including its common adulterants in species levels.

Methods: We corrected 4 authentic (Pinellia ternata for Pinelliae Tuber and Arisaema amurense, A. erubescens, and A. heterophyllum for Arisaematis Rhizoma) and 6 inauthentic plant species (see the material methods) for the extraction of genomic DNAs. The individual matK and rbcL genes were amplified using universal primer and analyzed to identify of species-specific sequences and investigate phylogenetic relationship among the species using entire rbcL and matK sequences, respectively.

Results: In comparison of two barcode sequences, we elucidated the phylogenetic tree showing distinct 9 groups depending on the species and obtained 45 species-specific nucleotides enough to identify each species excluding A. erubescens from matK and also obtained 28 marker nucleotides for each species excluding P. pedatisecta from rbcL genes, respectively. The sequence differences of combined two DNA barcodes at the corresponding positions were available genetic marker nucleotides to identify the correct species among analyzed medicinal plants.

Conclusion: The marker nucleotides enough to distinguish authentic Pinelliae Tuber and Arisaematis Rhizoma were obtained from matK and barcode sequences. These differences could be used to authenticate official Pinelliae Tuber and Arisaematis Rhizoma from its adulterants as well as discriminating each species. These results indicated that comparative analysis of plant DNA barcode sequences was useful genetic markers to identify authentic Pinelliae Tuber and Arisaematis Rhizoma.

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