

عنوان مقاله:

Effect of isolated polysaccharide from Rosa canina on the methylation of insulin and PaxF in diabetic rats

محل انتشار:

سومین کنگره بین المللی و چهارمین همایش ملی زیست فناوری گیاهان دارویی و قارچهای کوهی (مجازی) (سال: 1400)

تعداد صفحات اصل مقاله: 1

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خلاصه مقاله:

Introduction: Since DNA methylation plays a causal role in β -cell remodeling and development, thus modulation of this epigenetic mechanism is essential in treatment of diabetes. Therefore, this provoked us to examine the effect of a known anti-diabetic agent, an isolated polysaccharide, on the methylation pattern of Ins-1 and Pax-F in diabetic rats. Materials: Here, a polysaccharide fraction was isolated from Rosa canina and analyzed using NMR, FTIR and MS/MS techniques. Diabetes was established by using intraperitoneal injection of STZ in male Wistar rats. After treatment, pancreas was removed and DNA was extracted and bisulfite treated by a DNA methylation kit. PCR and real-time PCR were used to determine the levels of methylated and/or unmethylated Ins-1 and Pax-F genes. Results: The levels of blood glucose and weight body were normalized in diabetic rats exposed to isolated polysaccharide. The level of unmethylated Ins-1 was upregulated in diabetic rats which is downregulated in metformin and polysaccharide-treated ones. In diabetic rats, the content of methylated Pax-F was increased while it was decreased in polysaccharide-treated group. Interestingly, the methylation pattern of Pax-F in metformin group was the same as diabetic ones. Conclusion: Data clearly indicated that polysaccharide can reduce the level of blood glucose by modulating the methylation pattern of Pax-F and Ins-1. This study sheds light on the importance of DNA methylation modulation as a promising therapeutic strategy in diabetes.

کلمات کلیدی:

Diabetes, DNA methylation, Polysaccharide, Rosa canina

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