

The effects of selenium nanoparticles and sodium selenite on transcription rate of resistin gene in ewes' placenta

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Received: 14.01.2019

Accepted: 13.07.2019

Abstract

Resistin is a hormone secreted from adipose tissue that plays an important role in regulating energy homeostasis and glucose metabolism. In humans, only a small amount of resistin is expressed in adipose tissue and is most commonly found in the bone marrow, spleen, lung tissue, and placenta. The purpose of this study was to investigate the effect of oral administration of selenium and selenite sodium nanoparticles on the transcription rate of the resistin gene in pregnant ewes. For this, 20 pregnant ewes were randomly selected and divided into four groups and were administered daily for 10 days leading up to birth. In treated group 1 sodium selenite (0.1 mg/kg body weight), while in treated groups 2 and 3 selenium nanoparticles (at doses of 0.05 and 0.1 mg/kg body weight, respectively) were administered. The fourth group was received distilled water and served as a control group. At the time of parturition, samples were taken from the placenta and the transcription rate of the resistin gene was determined by RT-PCR Real-Time based on a comparison assay of $2^{-\Delta\Delta Ct}$. The results showed that oral selenium administration to pregnant ewes caused a significant increase in the amount of resistin gene transcription rate which the role of sodium selenite was more pronounced than that of selenium nanoparticles (With p, equal to 0.002, 0.002 and 0.001 respectively).

Key word: Placenta, Transcription rate, Selenium nanoparticles, Resistin

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