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Data Article

Data on possible in vitro anti-diabetic effects of verticinone on β -TC6 pancreatic and C2C12 skeletal muscle cellsFargol Mashhadi Akbar Boojar^a, Reza Aghaei^b,
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ABSTRACT

Verticinone as a steroidal alkaloid is one of the major active constituents of medicinal herb, *Fritillaria imperialis* with several pharmacological properties. Present data demonstrate an in vitro assessment of verticinone effects on β -TC6 pancreatic and C2C12 skeletal muscle cells include cell survival, activities of carbohydrate-hydrolyzing enzymes (α -amylase and α -glucosidase), levels of insulin secreted into the media, glucose uptake ability, advanced glycation end product (AGEs) include 3-deoxyglucosone, methylglyoxal, and pentosidine levels and the activity of glyoxalase I. Data reveals possible hypoglycemic potential of verticinone, although, the high concentrations of this compound were associated with elevated amount of AGEs and it should be assessed in future investigations.

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Specifications Table

Subject area	Biology
Specific subject area	The advanced glycation end product, Glucose uptake, Insulin secretion, carbohydrate-hydrolyzing enzymes activities, <i>Fritillaria imperialis</i> hypoglycemic effects
Type of data	Tables and graphs
How data was acquired	Multi-Label Reader (Hidex, Turku, Finland), ArrayScan high content screening system (Cellomics Inc., Pittsburgh, PA, USA), C18 reversed-phase separation column (Nova-Pak, 150 × 3 mm) and TSK-GEL ODS-80TM column of HPLC system
Data format	Raw and analyzed data
Parameters for data collection	β -TC6 pancreatic and C2C12 skeletal muscle cells were exposed to verticinone.
Description of data collection	Two independent cells were treated to various concentrations of verticinone and after 24 hours of incubation, they were prepared and evaluated using the biological assays based on UV/VIS spectrophotometric and HPLC methods.
Data source location	Faculty of Pharmacy, Baqiyatallah University of Medical Sciences, Tehran, Tehran Province, Iran.
Data accessibility	Raw data are available within this article as supplementary material.

Value of the Data

- Data including verticinone hypoglycemic effects may be of value to the researchers working on the treatment of diabetes using natural medicines.
- Data showing that hypoglycemic effects of verticinone are due to increased insulin secretion and glucose uptake and inhibition of carbohydrate-hydrolyzing enzymes may be of potential value for the scientists working on biological mechanisms of phytomedicine in diabetes mellitus.
- Data showing that verticinone high doses can lead to increased production of toxic glycation intermediates may be useful for the researchers working on drug discovery and herbal medicine.

1. Data

Verticinone ((1R, 2S, 6S, 9S, 11S, 14S, 15S, 18S, 20S, 23R, 24S)-10, 20-dihydroxy-6, 10, 23-trimethyl-4-azahexacyclo [12.11.0.02, 11.04, 9.015, 24.018, 23] pentacosan-17-one) is a widely known steroidal alkaloid with several pharmacological properties and it is regarded as one of the major active constituents of medicinal herb, *Fritillaria imperialis* [1–3]. However, this compound has never been evaluated in vitro for hypoglycemic and possible anti-diabetes activities.

Current data is about verticinone effects on β -TC6 pancreatic and C2C12 skeletal muscle cells. The cytotoxicity of verticinone against β -TC6 and C2C12 cells and 50% cell mortality (IC₅₀) for the assessed compound and doxorubicin (as a standard cytotoxic agent) expressed in Tables 1 and 2. Table 3 shows the half-maximal effective concentration (EC₅₀) of verticinone and Acarbose (as a standard inhibitor) on α -glucosidase and α -amylase activities. Verticinone effects on β -TC6 cells insulin secretion and glucose uptake, glyoxalase I activities and AGEs (Pentosidine, Methylglyoxal, and 3-Deoxyglucosone) of β -TC6 and C2C12 cells were presented in Fig. 1. The raw data file is included as supplementary material in this article.

Data reveals the possible anti-diabetic potential of verticinone, although, the high concentrations of this compound were associated with elevated levels of AGEs and it should be assessed in future investigations.

2. Experimental design, materials, and methods

2.1. Reagents, cell line, and cell cultures

Mouse myoblast (skeletal muscle) C2C12 and β -TC6 pancreatic cells were purchased from Institute Pasteur Medical Center (Tehran, Iran). Verticinone standard (purity>98.0%) were purchased from Sigma-Aldrich, St. Louis, MO and other chemicals and reagents were obtained from Gibco Laboratory (Invitrogen Co, Grand Island, NY, USA). The cells were grown in Dulbecco's modified Eagle's medium (Life Technologies, Inc., Rockville, MD) supplemented with heat-inactivated fetal bovine serum (FBS),

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