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EVALUATION OF THE GRIN SEA URCHIN EXTRACT'S INCRETINS EFFECT

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Diabetes mellitus type 2 (DM 2) is a global social problem. Million people around the world became sick with DM2 disease. Incretin-based therapy is the one of the most advanced methods in treatment of DM 2. According to the literature one of incretins-like activity mechanism is inhibition of dipeptidyl peptidase IV (DPPVI) and increase on native GLP-1 plasma level.

The aim of this study was to investigate incretins-like effects and mechanisms of activity of sea urchin *S. droebachiensis* extracts.

The objects of the study was eight extracts from internal organs of sea urchin *S. droebachiensis*: (KLS-070, KLS-074, KLS-075); gonads (KLS-071, KLS-072, KLS-073) and coelomic fluid (KLS-076, KLS-077). Sitagliptin, known as inhibitor of DPP-IV was used as the reference drug.

Inhibition effect of the dipeptidyl peptidase IV activity was studied in vitro (human DPPIV, Sigma-Aldrich) and in vivo (oral administration to Wistar rats). In vitro Chromogenic substrate method with glycine-proline-p-nitroanilide (Gly-Pro-PNA) as a substrate was used.

Sea urchin extracts' activity was tested on mouse's with DM2 and rats with metabolic syndrome animal models.

As a result inhibition of DPP-IV was observed for fraction from gonads only (KLS-071, KLS-072, KLS-073) at the concentration of 112, 73 and 30 ug/ml respectively.

Competitive inhibition was determined for most active substance — KLS-73. In vivo assay KLS-073 also had showed anti DPP IV activity.

In next study KLS-073 (2–20 mg/kg) had showed antihyperglycemic activity in DM2 model. In metabolic syndrome model of rats KLS-073 (doses 0.34–1.11 mg/kg) had showed antihyperglycemic, antihypertensive and regenerative action against pancreatic β -cells.

These results suggest utilization of *S. droebachiensis* as a potential new source of therapeutic compounds for the treatment of MD2 and metabolic syndrome. However, further purification of the active compounds is necessary in order to identify their chemical nature and to evaluate their potential as novel drugs.

PROSTAGLANDINS AND HORMONES IN EXTRACTS OF SEA URCHINS GONADS, *STRONGYLOCENTROTUS DROEBACHIENSIS* (O. F. MÜLLER, 1776)

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The prostaglandins (PG) are fatty acid derivatives that play a crucial role in a variety of physiological processes. PGs and their synthetic analogs are widely used in clinical practice. Hormones testosterone, estradiol and progesterone are biologically active substances used as components of various drugs and cosmetics. The evaluation of natural products containing different PGs and hormones is a promising research objective.

The purpose of this research was the determination of prostaglandin amount in extracts of gonads of green sea urchins *Strongylocentrotus droebachiensis* (O.F. Müller, 1776).

Extracts of eggs of Sea Urchins IE-1, IE-2, IE-3 were obtained by sequential extraction of gonads in several mixtures of solvents with increasing polarity. The extracts were suspended in phosphate buffer and then