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LIST OF ABBREVIATIONS

A549	Human lung adenocarcinoma cells.
ANOVA	One-way analysis of variance.
Av	Autophagic vacuoles.
BJcuL	Lectin from the venom of the snake <i>Bothrops jararacussu</i> .
BjV	<i>Bothrops jararaca</i> venom.
BmK	<i>Buthus martensi Karsch</i> .
BV	Bee venom.
CCV	<i>Cerastes cerastes</i> venom.
CN	Contortrostatin.
CrTX	Crotoxin.
CTX III	Cardiotoxin III.
DNA	Deoxyribonucleic acid.
DTNB	5, 5 dithiobis (2 –nitrobenzoic acid).
EAT	Ehrlich ascites tumor.
F	Filopodia.
FBS	Fetal bovine serum.
Fis1	Mitochondrial fission 1 protein.
g	Glycogen granules.
G	Golgi cisternae.
GSH	Glutathione reduced.

<i>H. lepturus</i>	<i>Hemiscorpious lepturus.</i>
H₂O₂	Hydrogen peroxide.
HBV	Hepatitis B virus.
HCC	Hepatocellular carcinoma.
HCV	Hepatitis C virus.
HeLa	Human cervical carcinoma cells.
HEp-2	Human laryngeal carcinoma cells.
HepG-2	Human hepatocellular carcinoma cell line.
IC₅₀	The half maximal inhibitory concentration.
K	Karyolysed nucleus.
K562	Human erythroleukemic cell line.
Kr	Karyorrhexis of the nucleus.
L	Lipid globules.
LAO	L-amino acid Oxidase.
LD₅₀	Median lethal dose.
Lp	Lipofuscins.
Ly	Lysosomes.
M	Mitochondria.
MCF-7	Human breast cancer cells.
MDA	Malondialdehyde.
Mf	Myelin figures.
MTT	3-(4, 5-dimethylthiazol-2-yl)-2, 5-

	diphenyltetrazolium bromide.
N	Nucleus.
NCI-H292	Human lung mucoepidermoid carcinoma cells.
Ne	Nuclear envelope.
Nu	Nucleolus.
OHAP-1	Okinawa Habu apoxin protein-1.
OsO₄	Osmium tetroxide.
P	Peroxisomes.
PBS	Phosphate buffer saline.
Pk	Pyknotic nucleus.
PLA₂s	Phospholipase A ₂ s.
Pm	Plasma membrane.
RER	Rough endoplasmic reticulum.
ROS	Reactive oxygen species.
SCLC	Small cell lung cancer cell line.
SD	Standard deviation.
SDS	Sodium dodecyl sulfate.
SEM	Standard error of mean.
SER	Smooth endoplasmic reticulum.
SPSS	Statistical package for social science.
SVT	Snake venom toxin.
TAC	Total antioxidant capacity.
TBA	Thiobarbituric acid.

TEM	Transmission electron microscope.
U251-MG	Malignant glioma cells.
V	Vacuoles.

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Abstract

Snake venoms are mixtures of bioactive proteins, peptides and enzymes that stimulate diverse biochemical activities and that made them attractive sources for research into potentially novel therapeutics. In the current study, *Cerastes vipera* crude venom was chosen to study its efficiency in inducing significant cytotoxicity to cancer cell line HepG-2. We performed a cytotoxicity test, morphological studies by using inverted microscope, transmission electron microscope (TEM) investigations and biochemical analyses by estimating the levels of glutathione reduced (GSH), lipid peroxide/malondialdehyde (MDA) and total antioxidant capacity (TAC) to examine cytotoxic effects of different concentrations of *Cerastes vipera* crude venom toward the cancer cell line HepG-2 at different time intervals.

MTT cell viability assay of cancer cells incubated with crude venom revealed that the venom showed significant cytotoxicity, besides we determined the IC_{50} of the venom. In general, the data proved that doses related to the IC_{50} of viper venom were potently cytotoxic to HepG-2 cells. Morphological studies and ultrastructural