

Chemistry, hepatoprotective and anticancer activities of omega-3 rich preparations purified from the seed oil of *Linum grandiflorum* Desf.

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The present study was conducted to investigate the composition of the oily fraction of the seed meal of the medicinal plant *Linum grandiflorum* Desf. (Linaceae) and then to test its cytotoxicity against EL₄, MCF₇, PC₃ and McCoy cell lines and evaluate its hepatoprotective activity. The analysis demonstrated that the seed oil consisted mainly of TAG 54:9 (trilinolenyl-glycerol 18:3-18:3-18:3), TAG 54:8 (18:3-18:3-18:2) and TAG 54:7 (18:3-18:3-18:1). These TAGs contain mainly α -linolenic acid (18:3) (Omega-3); while they are poor in linoleic acid (18:2), and oleic acid (18:1) is in trace amounts. The cytotoxicity of the seed oil was evaluated against EL₄, MCF₇, PC₃ and McCoy cell lines, and resulted with IC₅₀ = 30 \pm 2.4, 30 \pm 2.5, >100 and >100 μ M/mL respectively, while Thapsigargin gave IC₅₀ = 1.9 \pm 0.5, 2.5 \pm 0.5, 2.2 \pm 0.6 and 2.5 \pm 0.7 μ M/mL respectively. A remarkable disturbances was observed in the levels of all tested parameters. On the other hand, rats injected with the toxic agent and left for one and half month to self-recover showed moderate improvements in the studied parameters, while, treatment with the seed oil ameliorated the levels of the disturbed biochemical parameters and the Histopathological liver kidney and spleen profiles. Our results showed that seed oil of *Linum grandiflorum* Desf. revealing a remarkable effect and enhanced the levels of all tested parameters in liver chemical toxicity.

Biography

Dr. Magdy M. D. Mohammed (Born on 23th September 1977) has completed his B.Sc. on May 1999 at the age 22 years, and worked at National Research Center as Researcher Assistant by the year 2000, he finished his M.Sc. on December 2005 and promoted to the position as Assistant Researcher by the first of 2006 year, from November 2006 till May 2008 he traveled to Denmark to finish his Ph.D. through a scientific channel between [(Nucleic Acid Center, Department of Chemistry and Physics, University of Southern Denmark, Denmark) & (Danish Institute of Agricultural Sciences, Department of Food Science, Research Center Aarslev, University of Aarhus, Denmark) AND (Pharmacognosy Department, Pharmaceutical and Drug Industries Research Division, National Research Center, Egypt)], and awarded the Ph.D. degree from Faculty of Science - El-Menoufia University - Egypt on December 2008 at the age 31 years (within only two years). On June 2009 he granted a German Egyptian Research Short term Scholarship [GERSS] for PostDoctor. Fully funded by the DAAD and MoHESR. For Six Months (till December 2009) at Institut Für Umweltforschung (INFU), Technische Universität Dortmund, D-44221 Dortmund - Germany. On the 1st of April 2011 he granted a one year PostDoctor fellowship fully funded by Heiwa Nakajima Foundation at Nagasaki University Japan. On the 1st of August 2012 he was invited as a visiting researcher to the University of Southern Denmark - Department of Physics, Chemistry and Pharmacy for six months. He participated in many local (Egypt) and international (India) conferences as a speaker. He published more than 8 papers in reputed journals and serving as excellent reviewer in different reputed journals dealing with the isolation and structure elucidation of bioactive naturally occurring secondary metabolites from medicinal and terrestrial plants. He supervises two Ph.D. and five M.Sc. students. His major research area is the isolation and structural elucidation of the different classes of natural occurring compounds, and then studies their biological activity and finally study the structure activity relationship.

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