

Anti-diabetic Potential of Olive (*Olea Europaea*) Leaves Extract: In Vitro and in Vivo Evaluation

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Abstract : (1) Objective: The main objective of the current study was to evaluate in an In Vitro and In Vivo, the potential activity of olive leaves extract (OLE) in the treatment and/or preventing the diabetes mellitus type II and related implications; (2) Methodology: Five groups of male rats were used in the current study: group (1)- negative control (normal); group (2)- positive control, streptozotocin (STZ) induced rats; group (3)-diabetic rats treated with metformin (200 mg/kg) plus OLE (200 mg/kg); group 4- diabetic rats treated with metformin (200 mg/kg); group 5- diabetic rats treated with OLE (200 mg/kg). A four-week regime of oral treatment was administered once daily; (3) Results: Diabetic rats treated with metformin + OLE clearly showed normal blood glucose level (121.67 ± 5.49 mg/dl), and glycated hemoglobin (HbA1c) ($3.70 \pm 0.10\%$). The combination of metformin + OLE obviously showed a superior improvement in the lipid profile (TG, TC, HDL and LDL) compared to both metformin and OLE individually. The histological examination revealed that the combination of metformin + Olive leaves extract successfully repaired of the liver, kidneys, and pancreatic tissues in diabetic rats to be near to the normal status; (4) Conclusion: Finally, it can be concluded that, the combination of metformin and OLE exhibited a superior improvement than metformin and OLE individually which emphasized the promising adjuvant role of the OLE in the treatment protocol of diabetes mellitus type II.

Keywords : olive (*olea europaea*) leaves extracts, hypoglycemic agents, cytotoxicity, nitic oxide scavenging activity, α -glucose oxidase inhibitor

Conference Title : ICNRF 2023 : International Conference on Nutrition Research in Food Chemistry

Conference Location : Jeddah, Saudi Arabia

Conference Dates : February 20-21, 2023