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## Medicinal plant *Orchis latifolia* Linn. attenuates oxidative stress in diabetic rats

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Medicinal plants have been used since ancient times for the management of diabetes mellitus in traditional systems. A medicinal plant *Orchis latifolia* Linn. is a terrestrial herb commonly known as "Salep" in English language, is used for the treatment of diabetes. The aim of the study was to evaluate the anti-diabetic activity *in vitro* and *in vivo* with methanolic extract of *O. latifolia* roots (MEOL) in streptozotocin (STZ) induced diabetic rats. Male Wistar rats (180-250 grams) were selected for the study. The type II diabetes was induced in rats by a single intra peritoneal injection of streptozotocin with dose of 30 mg/kg body weight. The *in vitro*  $\alpha$ -amylase inhibitory activity of the extract was done by spectrophotometric method. Metformin (50 mg/kg body weight) was used as standard oral hypoglycemic agent. The blood glucose levels were determined on 11<sup>th</sup> day and the levels of malondialdehyde (MDA), superoxide dismutase (SOD) and catalase (CAT) were estimated in the liver tissue homogenate after 15 days of experimental period. MEOL showed significant inhibition of  $\alpha$ -amylase activity and the IC<sub>50</sub> was found to be 54  $\mu$ g/ml. Oral administration of MEOL significantly reduced blood glucose levels ( $p < 0.01$ ), decreased the MDA levels (28  $\mu$ g moles/mg of protein) and restored the depleted anti-oxidative enzymes SOD (38.33  $\mu$ g moles/mg of protein) and CAT (10.5  $\mu$ g moles/mg) to normalcy. These findings revealed that *O. latifolia* roots possess anti-hyperglycemic, anti-oxidant and anti-lipid peroxidative activity and thus mitigate STZ-induced oxidative damage. However, further studies related to the mechanism of action are in progress.

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## Psychological barriers for insulin among patients with type 2 diabetes at Duhok Diabetes Centre in Kurdistan Region, Iraq

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**Objectives:** The objectives were to assess the problem of psychological insulin resistant (PIR) among adults with type 2 diabetes and to identify the attitudinal barriers associated with it.

**Method:** A total of 150 insulin-naïve-registered patients with type 2 diabetes were involved in this prospective cross-sectional study. Patient's interview was done by using a pretested two parts questionnaire with the national Kurdish language after forward-backward translation from the English language. Cronbach's alpha test was used for the 5 points Likert scale part that involved the attitudinal barriers. A significant P-value was considered when  $P < 0.05$ . The study depended on SPSS version 22 for the data analysis.

**Results:** 56.3% of the patients were unwilling to start insulin when prescribed which represent the prevalence of PIR among patients with type 2 diabetes in Duhok. Among the socio-demographics characteristics tested in this study, gender, education level, employment status and family income has significant effects on patient's perception towards insulin. Most of the patients showed a negative attitude towards insulin giving a mean of 3.34 negative beliefs per subject. The most commonly expressed negative attitudes were injection fear, the permanent need for insulin therapy, and reduced flexibility or restrictiveness.

**Conclusion:** Negative perceptions towards insulin are common among patients with type 2 diabetes, especially in female, illiterate, unemployed and low-income patients. Interventions to raise awareness about such misconceptions are important to reduce PIR and to improve both insulin utilization and diabetes care.

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