

## Abstract

**Background:** Microbial resistance, diabetes mellitus and obesity are global phenomenon that has posed a serious threat to both human and environmental ecosystems. The goals of the present investigations are to investigate the phytoconstituents, antilipase, anti-amylase and antimicrobial characters of *Orobanchae aegyptiaca* Pers. (OA) from Palestine.

**Methods:** Identification of the phytoconstituents of (OA) plant petroleum ether, methylene chloride, chloroform, acetone, and methanol extracts was conducted using pharmacopeias methods while porcine pancreatic lipase and  $\alpha$ -amylase inhibitory activities were conducted using p-nitrophenyl butyrate and 3,5-dinitro salicylic acid methods, respectively. Moreover, the antimicrobial activity was established utilizing microdilution assay against eight bacterial and fungal strains.

**Results:** The phytochemical screening results showed that the methanol extract of (OA) plant rich in phytochemical classes, also this extract has powerful antilipase potential with  $IC_{50}$  value of  $19.49 \pm 0.16$   $\mu\text{g/ml}$  comparing with the positive control (Orlistat) which has antilipase activity with  $IC_{50}$  value of  $12.3 \pm 0.35$   $\mu\text{g/ml}$ . Moreover, the methanol and chloroform extracts have powerful  $\alpha$ -amylase inhibitory activity with  $IC_{50}$  values of  $28.18 \pm 0.22$  and  $28.18 \pm 1.22$   $\mu\text{g/ml}$ , respectively comparing with Acarbose which has  $\alpha$ -amylase inhibitory activity with  $IC_{50}$  dose of  $26.3.18 \pm 0.28$   $\mu\text{g/ml}$ . The antibacterial results showed that the methylene chloride extract revealed the highest antibacterial activity among the other (OA) plant extracts with MIC value of 0.78 mg/ml against *S. aureus*, while, the methylene chloride, petroleum ether and chloroform extracts of (OA) plant showed potential antifungal activity against *C. albicans* strains with MIC value of 0.78 mg/ml.

**Conclusion:** the methanol and chloroform extracts of (OA) plant could be excellent candidates as antilipase and anti-amylase bioactive materials in addition, the methylene