

## Abstract

**Background:** Till now the semi-synthetic derivatives from organic compounds is still complicated since these modified units are strongly dependent on the stability factor of their core structures which are mainly unstable, our current study aimed to establish some new Isoxazole derivatives and to assess their in vitro antidiabetic, anti-obesity and antioxidant activities.

**Method:** The current study aimed to semi-synthesize new derivatives from Isoxazole then to examine these derivatives effects as anti-diabetic, anti-obesity and antioxidant activities using in vitro study. **Results:** Five of based Isoxazole derivatives were prepared in this research and evaluated for their antioxidant, antidiabetic and anti-obesity potentials as obtained SAS-5 and SAS-8 showed high potency as anti-oxidants with  $IC_{50}$  equal to  $0.47 \pm 0.90$  and  $0.45 \pm 0.61$   $\mu\text{g/ml}$  compared to the Trolox (the control compound) which has  $IC_{50}$  equal to  $3.10 \pm 0.92$   $\mu\text{g/ml}$ . On the other hand moderate effects as anti-obesity agents were reported for SAS-1 and SAS-4 with  $IC_{50}$  equal to  $358.18 \pm 1.32$  and  $303.90 \pm 2.2$   $\mu\text{g/ml}$  compared to the Orlistat (the control compound) which has  $IC_{50}$  equal to  $12.30 \pm 0.33$   $\mu\text{g/ml}$ . **Conclusion:** According to this study some of these prepared Isoxazole derivatives could be used as a potent antioxidant and moderate anti-obesity agents, further investigations of other pharmacological activities required for manufacturing of new drugs used for the treatment of various diseases.