Obesity is caused as the result of an imbalance between energy intake and expenditure. Moreover, obesity is a strong risk factor for various diseases, such as hypertension, arteriosclerosis, diabetes mellitus. The aim of the present study is to evaluate the ability of roselle aqueous extract (RAE) to inhibit porcine pancreas lipase, S. Cerevisiae α-glucosidase, Bacillus. sp α-amylase and porcine pancreas α-amylase activity in vitro. Fresh roselle flower was extracted by aquadest at 70, 85 and 100o C for 15 and 30 minutes. We also analyzed total soluble phenolic content of the extract by the Folin-Ciocalteu reagent and total acidity by titratable acidity methods. The results indicated that RAE without pH treatment had more than 80% inhibitory activity for lipase, α-glucosidase and both α-amylase. Next we treated the pH of RAE similar to intestinal digestion condition as follow: the pH was reduced to pH 2 for 30 minutes and than increased to pH 6.8. The pH treated RAE had no effect on α-glucosidase and low inhibition on lipase activity but it showed the highest inhibition activity against α-amylase. Kinetic studies revealed uncompetitive inhibition of RAE on α-amylase porcine pancreas. Based on its strong α-amylase inhibitory RAE seems promising to be an anty obesity agent, although needs further study to proof in vivo efficacy.

Keywords: roselle, α-amylase, α-glucosidase, lipase, inhibition kinetic