

Phytochemical screening and pharmacological activities for *Physalisperuviana*

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Abstract

Background: Many researches are focusing on the development of effective therapies from herbals as alternatives to some chemical medications in managing many ailments such as diabetes, obesity, and bacterial resistance. In fact, herbal therapy is becoming an important branch of alternative and complementary medicine nowadays. **Methods:** The phytochemistry of water and organic extracts (both leaves and fruits) of *Physalisperuviana* was assessed. Then free radical scavenging properties of these fractions were determined using DPPH assay with Trolox as positive control. After that, antilipase, anti-amylase and anti glucosidase activities were estimated. Moreover, the antibacterial activity of was *in vitro* assessed using some bacterial strains. **Results:** The obtained results showed that the polar fractions(methanol and aqueous) *Physalisperuviana*leaves and fruits were rich in phenols, flavonoids and tannins while hexane fraction for both leaves and fruits was rich in steroids and cardiac glycosides. Methanol and aqueous fractions of leaves have potent antioxidant effect with IC₅₀ values(13.18±1.8 and 19.95±0.45µg/mL respectively) and also showed potential inhibitions against α-amylase with IC₅₀ values (42.65±0.21 and 46.77±0.26µg/mL) for plant fruits. Weak activities for all plant extract fractions were observed against both α-glucosidase and lipase enzymes despite acetone fraction of fruits which exerted modest α-glucosidase inhibition activity with IC₅₀ value 158.48±.15µg/ml relative to acarbose value which was 39.81±.46µg/ml. On the other hand, leaves hexane fraction had antibacterial activity against *S. aureus* and *P. arginosa* with IC₅₀ equal to 8 mg/ml for both bacterial strains. **Conclusion:** In this project, it was observed that *Physalisperuviana* methanol and aqueous fraction were rich in phytochemicals that responsible for antioxidant effects so further *in-vivo* studies must be carried out on these fractions in future researches, also cardiac glycosides and steroids that appeared in hexane fraction seemed to be active against some bacterial strains.

Keywords: *Physalisperuviana*; α-amylase; α-glucosidase; Lipase, DPPH