



## **Alpha-glucosidase inhibition assay of *Lawsonia inermis* Linnaeus leaf ethanol and water extracts**

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**Abstract:Background:***Lawsonia inermis* Linnaeus (*L. inermis* L.), commonly known as daun inai has been used to treat diabetes among diabetic patients in Medan, Indonesia.

**Method :** This study is conducted to identify the chemical compound of *L. inermis* L. ethanol (EE) and aquaous (EA) extract and evaluate its alpha-glucosidase inhibition activity. The dried powdered leaves of *L. inermis* L. were extracted to to obtain two extracts namely EE and WE. Qualitative phytochemical screening was conducted to identify chemical compounds in both extracts. Overnight-fasted normal rats were divided into four groups and received the treatment orally. Group I: acarbose (10 mg/kg); groups II, III and IV: EE (1 g/kg), WE (1 g/kg) and distilled water (10 ml/kg). Ten minutes later, the rats were challenged with starch (3 g/kg). Blood glucose levels (BGL) were measured at 0 , 30, 60 and 120 min. Areas under the curve (AUC) were determined. The similar procedure were applied to oral glucose challenge test at dose 2 g/kg.

**Result:** EE and WE of *L. inermis* L consist of tannin, alkaloid, steroid, triterpenoid, flavonoid and saponin. Both extracts have no significant effect to inhibit alpha-glucosidase activity.

**Conclusion:** EE and EA of *L. inermis* L have no alpha-glucosidase inhibition activity. Other mechanism of actions as antidiabetic should be investigated.

**Keywords:** alpha-glucosidase inhibition, *Lawsonia inermis* Linnaeus leaf, ethanol extract, water extract.

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