

## Inhibitory effects of aqueous extract prepared from joint part of lotus root on $\alpha$ -amylase and $\alpha$ -glucosidase activities

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### Abstract

Postprandial hyperglycemia is a risk factor contributing to cardiovascular complications in type 2 diabetes, and  $\alpha$ -amylase and  $\alpha$ -glucosidase, the key enzymes in the digestion and absorption of carbohydrates, are recognized to be responsible for the postprandial elevation of blood glucose levels, and the inhibition of these enzymes is therefore considered to be effective to prevent the emergence of postprandial hyperglycemia. Then, the aqueous extracts were prepared from both edible and joint parts of lotus root (a rhizome of *Nelumbo nucifera*), and the inhibitory effects of these extracts on  $\alpha$ -amylase and  $\alpha$ -glucosidase activities were examined. Consequently, the joint part extract, but not the edible part extract, was shown to inhibit  $\alpha$ -amylase and  $\alpha$ -glucosidase in a different manner. Therefore, it seems conceivable that the aqueous extract prepared from the joint part of lotus root inhibits both  $\alpha$ -amylase and  $\alpha$ -glucosidase, thereby effectively preventing the postprandial elevation of blood glucose levels in diabetic patients.

**Keywords:** Lotus root; *Nelumbo nucifera*;  $\alpha$ -Amylase;  $\alpha$ -Glucosidase

### Introduction

Postprandial hyperglycemia is generally known as one of the major risk factors contributing to the development of cardiovascular complications in type 2 diabetes, and therefore necessary to be properly treated at an early stage of the disease for avoiding the tragic terminal conditions of diabetic patients brought by the cardiovascular complications. On the other hand,  $\alpha$ -amylase and  $\alpha$ -glucosidase are considered as the key enzymes respons-