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A Science Opinion on *Polyscias Fruticosa* And *Morus Alba* L. Combination: Better Anti-Diabetic and Late Complication Inhibitory Properties?

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Abstract

Based on our knowledge and field survey results in control and management of diabetes mellitus by complementary/alternative medicine and especially the consumption of herbs, we briefly commented on anti-diabetic properties of *Polyscias fruticosa* and *Morus alba* L. combination.

Keywords: *Polyscias fruticosa; Morus alba* L; Diabetes mellitus; Alternative medicine; Complementary medicine; Anti-diabetic properties; Herbs; Western medicine; Blood circulation; Hyperglycemia; Diabetic retinopathy; Lipids

Introduction

Traditional Vietnamese medicine (TVM) is a type of popular alternative medicine applied to treat diseases as well as improve general well beings. Many herbs have attracted substantial attention because they have beneficial efficacy more than western medicine. Interestingly for patients with diabetes mellitus, consumption of both *Polycias fruticosa* and *Morus alba* L is claimed to be beneficial.

According to TVM theory, the development of diabetes mellitus is associated with deficiency of both energy and body fluids and results in the heat of tissues and blood or urine stasis (congested blood circulation or urine) [1]. The late complications of diabetes include a series of clinical pathologies, mainly related to the involvement of the arterial wall both of large vessels and small vessels, and of the peripheral nervous system. The metabolic abnormalities due to hyperglycemia lead to the development of late diabetic complications which related coherently genetic background, such as diabetic retinopathy, renal failure and diabetic neuropathy, cardiomyopathy (heart failure) observed in these patients [2]. Furthermore, it is believed that these two herbs could combine synergistically with each other, which enhanced anti-diabetic efficacy and inhibit late diabetic complications. In order to provide scientific evidences to these opinions, the anti-diabetic effects of *Morus alba* L and practical application of *Polyscias fruticosa* have been reported and interviewed.

Mulberry (*Morus alba* L.) leaf has been known to have hypoglycemic effects since ancient times. In Vietnam and Asia countries, mulberry leaf is consumed as tea for the treatment of diabetes mellitus. Thirty-day treatment with mulberry powder exhibited significantly lower fasting blood glucose compared to glibenclamide [3]. The treatment with mulberry tea can cause malabsorption of carbohydrates [4,5]. Results of a clinical trial that combined dietary control, exercise, and the total alkali fraction from mulberry leaf showed a reduction of blood glucose, regulation of lipids and fewer side effects compared with acarbose treatment [6]. Mulberry tea has also been shown to suppress postprandial hyperglycemia after 90 min of its consumption [7].

Polyscias fruticosa belonging Araliaceae family is used as a tonic and medicinal food in traditional medicine because this herb possesses wondrous health benefits. Consuming it for long time help to enhance and improve physical body. Other benefits such as anti-anxiety, restoration of brain circulation function and improvement of nervous system function also were observed.

Although there has no science evidence that *Polyscias fruticosa* have anti-diabetic benefits, practical applications reveal this. Moreover, it might contribute to properties of late complication inhibitory.

The survey results showed that recently, in Vietnam diabetic patients consuming combination of two these herbs themselves showed synergistic relationship for all diabetic properties over the range of doses under investigation. The most promising anti-diabetic property of *Polycias fruticosa* and *Morus alba* L is their inhibitory capacity of late complications of diabetes. Additionally, when the herbs were used together, strong synergistic effect was stated by diabetic patients.

In conclusion, it could be anticipated that the combination of *Polycias fruticosa* and *Morus alba* L will be useful in preventing hyperglycemia and late complications in the future. However, we concern that medical resistance phenomenon is very likely when consuming for long time. Further study should be carried out to firm evidence with an *in vivo* model.

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