

題目:

中文題目：番石榴內含物桑色素 (morin) 促進胰島素分泌的研究

英文題目：Investigation of the mechanism(s) for morin-induced secretion of insulin.

研究生專題報告書面摘要

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## 摘要

糖尿病是一種常見的疾病，不論在已開發或開發中的國家都有很高的發生率。糖尿病的病變主要是因為血糖的失調，血糖的調節受到多種因素的影響，最主要的是胰島素。而臨床上糖尿病主要分為 I 型和 II 型兩種，第 I 型主要是由於缺乏胰島素分泌，第 II 型則是血中雖有胰島素，可是胰島素無法正常的作用，導致葡萄糖無法生成肝醣而造成高血糖症。番石榴是台灣常見的水果，番石榴內含物桑色素 (morin) 每天口服攝入 25 毫克/公斤，能降低糖尿病鼠的血糖。同時，也會增加肝臟的糖原合成。番石榴內含物桑色素和臨床使用的藥物(格列本脲)一樣，兩者皆可逆轉這些糖尿病大鼠所減少的肝醣原。另外，它在肝細胞也會抑制肝醣分解為葡萄糖，抑制糖份的新生(葡萄糖的形成)，和一般的胰島素信號相似，關於受體後信號 FOXO1 通路都參與了這個作用。因此，桑色素被認為具有胰島素相似的作用。並且，中國的研究人員也證明，桑色素可降低肝臟的脂質。另一方面，桑色素在糖尿病大鼠會增加血液胰島素，可以顯著降低血糖。然而，可能的機制並未被探討。因此，找出桑色素的這項機轉，研究桑色素誘發釋放胰島素的作用機制與途徑；番石榴內含物 (morin) 是通過什麼途徑來增強胰島素的分泌，直接和/或間接是什麼？這些都將是未來的主要研究目標。

關鍵字：糖尿病、桑色素、胰島素、芭樂

## Abstract

Diabetes Mellitus is a popular disease around the world. The prevalence of this disease is still raised in both developed and non-developed countries. Hyperglycemia is the main disorder of DM which is mainly classified into type-I and type-II. Guava is a famous fruit in Taiwan and it contained morin has been documented. Morin can lower blood sugar in diabetic rats only and did not modify the blood sugar in normal animals. Meanwhile, this action of morin was produced from 25 mg/kg after oral intake per day and it was produced in a dose-related manner at two weeks later. The action of morin seems related to the increase of glycogen synthesis in liver. Hepatic glycogen was significantly reduced in diabetic rats. Morin and the clinical used drug glibenclamide can reverse the reduced hepatic glycogen in these diabetic rats. Morin can inhibit the gluconeogenesis, the formation of glucose, in liver cells as described in another report. The regular insulin signals are involved in this action of morin regarding post-receptor signals to FOXO1 pathway. Therefore, morin was introduced to show insulin-mimetic action in this report. On the other hand, Chinese researchers demonstrated that morin can lower the lipids in liver. It means morin can decrease lipids in a way similar to guava. Additionally, an increase of blood insulin by morin was also observed in diabetic rats. However, the possible mechanism(s) did not conduct in clear. Therefore, it is of special interesting to find out this unclear point. I wish to investigate the detailed mechanisms for morin-induced release of insulin that will be my main proposal in the future.

Keywords: Diabetes, Morin, Insulin Secretion, Guava

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