• 系統編號	RN9404-0260
• 計畫中文名稱	產學合作計畫---改善糖尿病患之血糖、胰島素及脂質濃度之米麩穀粉產品開發(I)
• 計畫英文名稱	Development of a New Product of Rice Bran Flour to Improve Blood Glucose, Insulin and Lipid Levels in Diabetic Mellitus Patients
• 主管機關	行政院國家科學委員會
• 計畫編號	NSC92-2622-B038-003
• 執行機構	臺北醫學大學保健營養學系
• 本期期間	9208 ~ 9307
• 報告頁數	11 頁
• 使用語言	中文
• 研究人員	鄭心嫻 Cheng, Hsing-Hsien
• 中文關鍵字	米穀粉; 糖尿病患者; 血糖; 胰島素
• 英文關鍵字	Rice flour; Diabetic patient; Blood glucose; Insulin
• 中文摘要	由國內產之稻米成份中開發具降血脂質， 及降低偏高血糖功效機能之保健食品。 米麩穀粉是由糙米製精白米取得。米麩穀粉先經 70℃，4 小時將其中酵素不活化 後，以 高 壓 滅 菌 釜 121℃，40 分 鐘 煮 熟 後 當作研究材料，儲存於 -18℃。米麩穀 粉膳食纖維約 20.3%。 徵求台北地區 30~80 歲，42 名男女，； 空腹血糖值 126 mg/dL，並經醫師診 斷爲 第二型糖尿病者且無併發症者爲本研究之 受試者。先依受試者不同的 HbA1c 分成 <6.8 (slight hyperglycemic, SLH)、6.8-8.5 (mildly hyperglycemic, MIH) 及 >8.5 (severely hyperglycemic, SEH) 三組，每天 攝取 20 g 的米麩穀粉，爲期 4 週 (第一年計畫)。在實驗期間受試者維持其平日的飲 食及生活習慣，於第 0 週及 4 週，進行餐 後血糖反應試驗：受試者於受測日上午經 確認前夜空腹 8-12 小時之後， 0、30、60、 90、120、180 分鐘，分別由靜脈抽出血液 進行分析。並做飲食及生活狀況記錄。以 上實驗設計經人體委員會通過。結果顯示 : MIH 及 SEH 組空腹血糖有下降的趨勢但 無統計上的差異。在糖化血色素方面，僅 在 SEH 這一組在攝取米麩穀粉 4 週後顯著 的下降，具有統計上的差異 (P<0.05)。且 SEH 組在攝取 4 週米麩穀粉後葡萄糖曲線 下面積也有顯著的下降 (P<0.05)。
• 英文摘要	Development of a new product of rice bran flour improves blood glucose, insulin, and lipid levels in diabetes mellitus patients in Taiwan. The increasing prevalence of disorders associated with insulin resistance, including diabetes, obesity, and hypertension, as well as the continuing public heath threat posed by cardiovascular disease have increased interest in the effects that alterations in diet composition have on insulin sensitivity. Rice bran is a milled rice by-product which is the rice bran layer removed from brown rice.

Brown rice is the unmilled product, but with the hulls removed. Rice bran contains 20.3% dietary fiber. Enzymes in rice bran were inactivated when it was heated for 4 h at 70 degree C and 121 degree Cat 40 min before storage at -18 degree C. Polished rice flour was used as a placebo. First and second years: Forty two type 2 diabetes subjects, aged 30 to 80 years volunteered to participate in this study. A diagnosis of type 2 diabetes was based on accepted criteria of the America Diabetes Association, and all were free-living patients. Individuals with chronic kidney, liver, pulmonary, or cardiac disease, and who smoked, were alcoholic, or had an infection were not accepted. All subjects consumed a self-selected Eastern diet. The study design was approved by the Human Subjects Review Committee of Taipei Medical University Hospital. All subjects gave informed consent and filled out a health history questionnaire prior to entering the study protocol. We investigated the effects of rice bran supplementation on the concentrations of serum glucose and insulin in diabetes mellitus subjects after 20 g of rice bran each day for 1 mouth. After 30, 60, 90, 120, and 180 min, blood was collected. The results showed that plasma glucose levels in MIH and SEH were tended to decrease. After diabetic subjects supplement rice bran for 4 weeks, HbA1c was significant decreased in SEH ($P<0.05$). Moreover, consumption of rice bran diets significant decreased the postprandial glucose response in SEH.