

**EFEK DIET MI KOMPOSIT TEPUNG BERAS – TAPIOKA DAN MI TERIGU
DENGAN PENAMBAHAN GLUKOMANAN PORANG TERHADAP
KOMPOSISI KIMIA MI, PROFIL MIKROBIOTA DAN
SCFA DIGESTA TIKUS DIABETES MELLITUS**

INTISARI

Oleh :

DEA FERNANDA

22/509755/PTP/01973

Diabetes melitus tipe 2 (T2DM) berkaitan dengan disbiosis mikrobiota usus, gangguan metabolisme karbohidrat, dan penurunan produksi SCFA. Serat larut seperti glukomanan berpotensi memperbaiki kondisi tersebut. Penelitian ini mengevaluasi efek mi komposit beras – tapioka dan mi terigu yang diperkaya glukomanan terhadap komposisi mi, profil mikrobiota, dan kadar SCFA pada tikus diabetes. Sebanyak 42 tikus Wistar dibagi menjadi 7 kelompok, termasuk kontrol sehat, kontrol diabetes, dan lima kelompok diet berbasis mi. Perlakuan diberikan selama 4 minggu setelah induksi T2DM dengan STZ-NA. Penambahan glukomanan meningkatkan pati resisten, menurunkan amilopektin, serta mempertahankan amilosa. Kelompok RG menunjukkan diversitas mikrobiota tertinggi dan kadar SCFA paling besar, sedangkan WO terendah. Glukomanan juga membantu menjaga kelembapan digesta. Temuan ini menunjukkan bahwa mi komposit beras – tapioka dengan penambahan glukomanan berpotensi sebagai pangan fungsional untuk mendukung pengelolaan T2DM melalui peningkatan SCFA dan modulasi mikrobiota usus.

Kata kunci : Glukomanan; Mi Komposit; Pati Resisten; Mikrobiota Usus; SCFA; Diabetes Mellitus Tipe 2

THE EFFECT OF A RICE – TAPIOCA COMPOSITE NOODLE AND WHEAT NOODLE DIET ENRICHED WITH PORANG GLUCOMANNAN ON NOODLE CHEMICAL COMPOSITION, GUT MICROBIOTA PROFILE, AND SCFA LEVELS IN DIGESTA OF DIABETIC RATS

ABSTRACT

By:

DEA FERNANDA
22/509755/PTP/01973

Type 2 diabetes mellitus (T2DM) is associated with gut microbiota dysbiosis, impaired carbohydrate metabolism, and reduced short chain fatty acid (SCFA) production. Soluble fibers such as glucomannan have the potential to ameliorate these disturbances. This study evaluated the effects of glucomannan, gut microbiota profiles, and SCFA levels in diabetic rats. A total of 42 Wistar rats were divided into seven groups, including a healthy control, a diabetic control, and five noodle based dietary groups. Treatments were administered for 4 weeks following T2DM induction using STZ-NA. Glucomannan supplementation increased resistant starch, reduced amylopectin, and maintained amylose content. The RG group exhibited the highest microbiota diversity and SCFA concentrations, whereas the WO group showed the lowest. Glucomannan also contributed to maintaining digesta moisture. These findings suggest that glucomannan enriched rice tapioca composite noodles have potential as functional food to support T2DM management by enhancing SCFA production and modulating gut microbiota.

Keywords : Glucomannan; Composite Noodles; Resistant Starch; Gut Microbiota; SCFA; Type 2 Diabetes Mellitus