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PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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DAFTAR PUSTAKA

Ae Park, S., Choi, M.-S., Cho, S.-Y., Seo, J.-S., Jung, U.J., Kim, M.-J., Sung, M.-K., Park, Y.B., Lee, M.-K., 2006. Genistein and daidzein modulate hepatic glucose and lipid regulating enzyme activities in C57BL/KsJ-db/db mice. Life Sci. 79, 1207–1213. https://doi.org/10.1016/j.lfs.2006.03.022

Ahmad, T.R., Haeusler, R.A., 2019. Bile acids in glucose metabolism and insulin signalling — mechanisms and research needs. Nat. Rev. Endocrinol. 15, 701–712. https://doi.org/10.1038/s41574-019-0266-7

Ahnan-Winarno, A.D., Cordeiro, L., Winarno, F.G., Gibbons, J., Xiao, H., 2021. Tempeh: A semicentennial review on its health benefits, fermentation, safety, processing, sustainability, and affordability. Compr. Rev. Food Sci. Food Saf. 20, 1717–1767. https://doi.org/10.1111/1541-4337.12710

Akira, S., Takeda, K., Kaisho, T., 2001. Toll-like receptors: critical proteins linking innate and acquired immunity. Nat. Immunol. 2, 675–680. https://doi.org/10.1038/90609

Alhmoud, T., Kumar, A., Lo, C.-C., Al-Sadi, R., Clegg, S., Alomari, I., Zmeili, T., Gleasne, C., Mcmurry, K., Dichosa, A., Vuyisich, M., Chain, P., Mishra, S., Ma, T., 2019. Investigating intestinal permeability and gut microbiota roles in acute coronary syndrome patients. Hum. Microbiome J. 13, 100059. https://doi.org/10.1016/j.humic.2019.100059

Ananthakrishnan, A.N., Luo, C., Yajnik, V., Khalili, H., Garber, J.J., Stevens, B.W., Cleland, T., Xavier, R.J., 2017. Gut Microbiome Function Predicts Response to Anti-integrin Biologic Therapy in Inflammatory Bowel Diseases. Cell Host Microbe 21, 603-610.e3. https://doi.org/10.1016/j.chom.2017.04.010

Antunes, L.C., Elkfury, J.L., Jornada, M.N., Foletto, K.C., Bertoluci, M.C., 2016. Validation of HOMA-IR in a model of insulin-resistance induced by a high-fat diet in Wistar rats. Arch. Endocrinol. Metab. 60, 138–142. https://doi.org/10.1590/2359-3997000000169

Aoki, H., Uda, I., Tagami, K., Furuya, Y., Endo, Y., Fujimoto, K., 2003. The production of a new tempeh-like fermented soybean containing a high level of gamma-aminobutyric acid by anaerobic incubation with Rhizopus. Biosci. Biotechnol. Biochem. 67, 1018–1023. https://doi.org/10.1271/bbb.67.1018

Areekul, S., Pattanamatum, S., Cheeramakara, C., Churdchue, K., Nitayapabskoon, S., Chongsanguan, M., 1990. The source and content of vitamin B12 in the tempehs. J. Med. Assoc. Thail. Chotmaihet Thangphaet 73, 152–156.

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Arena, M.P., Capozzi, V., Longo, A., Russo, P., Weidmann, S., Rieu, A., Guzzo, J., Spano, G., Fiocco, D., 2019. The Phenotypic Analysis of Lactobacillus plantarum shsp Mutants Reveals a Potential Role for hsp1 in Cryotolerance. Front. Microbiol. 10, 838. https://doi.org/10.3389/fmicb.2019.00838

Arifin, M., Budiman, C., Fujiyama, K., Arief, I.I., 2021. Kinetic and Thermodynamic Study of Plantaricin IIA-1A5, a Bacteriocin Produced by Indonesian Probiotic Lactobacillus plantarum IIA-1A5. Protein Pept. Lett. 28, 680–686. https://doi.org/10.2174/0929866527999201123213841

Arifin, W.N., Zahiruddin, W.M., 2017. Sample Size Calculation in Animal Studies Using Resource Equation Approach. Malays. J. Med. Sci. MJMS 24, 101–105. https://doi.org/10.21315/mjms2017.24.5.11

Arora, T., Tremaroli, V., 2021. Therapeutic Potential of Butyrate for Treatment of Type 2 Diabetes. Front. Endocrinol. 12.

Ascaso, J.F., Pardo, S., Real, J.T., Lorente, R.I., Priego, A., Carmena, R., 2003. Diagnosing Insulin Resistance by Simple Quantitative Methods in Subjects With Normal Glucose Metabolism. Diabetes Care 26, 3320–3325.

Asemi, Z., Khorrami-Rad, A., Alizadeh, S.-A., Shakeri, H., Esmaillzadeh, A., 2014. Effects of synbiotic food consumption on metabolic status of diabetic patients: a double-blind randomized cross-over controlled clinical trial. Clin. Nutr. Edinb. Scotl. 33, 198–203. https://doi.org/10.1016/j.clnu.2013.05.015

Asmarani, F., Wirjatmadi, B., Adriani, M., 2017. The effects of corn flour with tempeh flour supplementation feeding in diabetes mellitus wistar rats toward blood glucose level. J. Ilm. Kedokt. Wijaya Kusuma 4, 24–35. https://doi.org/10.30742/jikw.v4i2.10

Association, A.D., 2019. 2. Classification and Diagnosis of Diabetes: Standards of Medical Care in Diabetes—2019. Diabetes Care 42, S13–S28. https://doi.org/10.2337/dc19-S002

Astawan, M., Mardhiyyah, Y., Wijaya, C., 2018. Potential of Bioactive Components in Tempe for the Treatment of Obesity. J. Gizi Dan Pangan 13, 79–86. https://doi.org/10.25182/jgp.2018.13.2.79-86

Astawan, M., Wresdiyati, T., Widowati, S., Bintari, S.H., Ichsani, N., 2013. Karakteristik Fisikokimia dan Sifat Fungsional Tempe yang Dihasilkan dari Berbagai Varietas Kedelai (Phsyco-chemical Characteristics and Functional Properties of Tempe Made from Different Soybeans Varieties). J. PANGAN 22, 241–252. https://doi.org/10.33964/jp.v22i3.102

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Astriani, A., Diniyah, N., Jayus, J., Nurhayati, N., 2018. Phenotypic identification of indigenous fungi and lactic acid bacteria isolated from 'gatot' an Indonesian fermented food. Biodiversitas J. Biol. Divers. 19, 947–954. https://doi.org/10.13057/biodiv/d190325

Aydin, Ö., Nieuwdorp, M., Gerdes, V., 2018. The Gut Microbiome as a Target for the Treatment of Type 2 Diabetes. Curr. Diab. Rep. 18. https://doi.org/10.1007/s11892-018-1020-6

Badan Pusat Statistik, 2019. Rata-Rata Konsumsi per Kapita Seminggu Beberapa Macam Bahan Makanan Penting, 2007-2018 [WWW Document]. Rata-Rata Konsumsi Kapita Semin. Beberapa Macam Bahan Makanan Penting 2007-2018. URL https://www.bps.go.id/statictable/2014/09/08/950/rata-rata-konsumsi-per-kapita-seminggu-beberapa-macam-bahan-makanan-penting-2007-2018.html (accessed 2.11.20).

Bai, Z., Meng, J., Huang, X., Wu, G., Zuo, S., Nie, S., 2020. Comparative study on antidiabetic function of six legume crude polysaccharides. Int. J. Biol. Macromol. 154, 25–30. https://doi.org/10.1016/j.ijbiomac.2020.03.072

Balasubramanyam, A., Nalini, R., Hampe, C.S., Maldonado, M., 2008. Syndromes of Ketosis-Prone Diabetes Mellitus. Endocr. Rev. 29, 292–302. https://doi.org/10.1210/er.2007-0026

Barus, T., Maya, F., Hartanti, A.T., 2019. Peran Beberapa Galur Rhizopus microsporus yang Berasal dari "laru tradisional" dalam Menentukan Kualitas Tempe. J. Apl. Teknol. Pangan 8. https://doi.org/10.17728/jatp.3761

Barus, T., Suwanto, A., Wahyudi, A., Wijaya, H., 2013. Role of Bacteria in Tempe Bitter Taste Formation: Microbiological and Molecular Biological Analysis Based on 16S rRNA Gene.

Benmechernene, Z., Fernández-No, I., Quintela-Baluja, M., Böhme, K., Kihal, M., Calo-Mata, P., Barros-Velázquez, J., 2014. Genomic and Proteomic Characterization of Bacteriocin-Producing Leuconostoc mesenteroides Strains Isolated from Raw Camel Milk in Two Southwest Algerian Arid Zones. BioMed Res. Int. 2014, e853238. https://doi.org/10.1155/2014/853238

Bennekum, A.M. van, Nguyen, D.V., Schulthess, G., Hauser, H., Phillips, M.C., 2005. Mechanisms of cholesterol-lowering effects of dietary insoluble fibres: relationships with intestinal and hepatic cholesterol parameters. Br. J. Nutr. 94, 331–337. https://doi.org/10.1079/BJN20051498

PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Bintari, S., Putriningtyas, N., Nugraheni, K., Widyastiti, N., Dharmana, E., Johan, A., 2015. Comparative Effect of Tempe and Soymilk on Fasting Blood Glucose, Insulin Level, and Pancreatic Beta Cell Expression (Study on Streptozotocin-Induced Diabetic Rats). Pak. J. Nutr. 14, 239–246.

Bokulich, N.A., Subramanian, S., Faith, J.J., Gevers, D., Gordon, J.I., Knight, R., Mills, D.A., Caporaso, J.G., 2013. Quality-filtering vastly improves diversity estimates from Illumina amplicon sequencing. Nat. Methods 10, 57–59. https://doi.org/10.1038/nmeth.2276

Borges, C., Carrão‐Panizzi, M., Mandarino, J., da Silva, J., Benedetti, S., Ida, E., 2016. Contents and bioconversion of β‐glycoside isoflavones to aglycones in the processing conditions of soybean tempeh. Pesq Agropec Bras Brasília 51, 271–279.

Boucher, J., Kleinridders, A., Kahn, C.R., 2014. Insulin Receptor Signaling in Normal and Insulin-Resistant States. Cold Spring Harb. Perspect. Biol. 6. https://doi.org/10.1101/cshperspect.a009191

Brown, C.T., Davis-Richardson, A.G., Giongo, A., Gano, K.A., Crabb, D.B., Mukherjee, N., Casella, G., Drew, J.C., Ilonen, J., Knip, M., Hyöty, H., Veijola, R., Simell, T., Simell, O., Neu, J., Wasserfall, C.H., Schatz, D., Atkinson, M.A., Triplett, E.W., 2011. Gut microbiome metagenomics analysis suggests a functional model for the development of autoimmunity for type 1 diabetes. PloS One 6, e25792. https://doi.org/10.1371/journal.pone.0025792

Campbell, J.M., Fahey, G.C., Wolf, B.W., 1997. Selected indigestible oligosaccharides affect large bowel mass, cecal and fecal short-chain fatty acids, pH and microflora in rats. J. Nutr. 127, 130–136. https://doi.org/10.1093/jn/127.1.130

Canani, R.B., Costanzo, M.D., Leone, L., Pedata, M., Meli, R., Calignano, A., 2011. Potential beneficial effects of butyrate in intestinal and extraintestinal diseases. World J. Gastroenterol. WJG 17, 1519–1528. https://doi.org/10.3748/wjg.v17.i12.1519

Cani, P.D., 2013. Gut microbiota and obesity: lessons from the microbiome. Brief. Funct. Genomics 12, 381–387. https://doi.org/10.1093/bfgp/elt014

Cani, P.D., Osto, M., Geurts, L., Everard, A., 2012. Involvement of gut microbiota in the development of low-grade inflammation and type 2 diabetes associated with obesity. Gut Microbes 3, 279–288. https://doi.org/10.4161/gmic.19625

Capozzi, V., Arena, M.P., Crisetti, E., Spano, G., Fiocco, D., 2011. The hsp 16 Gene of the Probiotic Lactobacillus acidophilus Is Differently Regulated by Salt, High Temperature and Acidic Stresses, as Revealed by Reverse Transcription Quantitative

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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

PCR (qRT-PCR) Analysis. Int. J. Mol. Sci. 12, 5390–5405. https://doi.org/10.3390/ijms12085390

Chambers, E.S., Viardot, A., Psichas, A., Morrison, D.J., Murphy, K.G., Zac-Varghese, S.E.K., MacDougall, K., Preston, T., Tedford, C., Finlayson, G.S., Blundell, J.E., Bell, J.D., Thomas, E.L., Mt-Isa, S., Ashby, D., Gibson, G.R., Kolida, S., Dhillo, W.S., Bloom, S.R., Morley, W., Clegg, S., Frost, G., 2015. Effects of targeted delivery of propionate to the human colon on appetite regulation, body weight maintenance and adiposity in overweight adults. Gut 64, 1744–1754. https://doi.org/10.1136/gutjnl-2014-307913

Chao, P.-C., Li, Y., Chang, C.-H., Shieh, J.P., Cheng, J.-T., Cheng, K.-C., 2018. Investigation of insulin resistance in the popularly used four rat models of type-2 diabetes. Biomed. Pharmacother. Biomedecine Pharmacother. 101, 155–161. https://doi.org/10.1016/j.biopha.2018.02.084

Chávez-Carbajal, A., Pizano-Zárate, M.L., Hernández-Quiroz, F., Ortiz-Luna, G.F., Morales-Hernández, R.M., De Sales-Millán, A., Hernández-Trejo, M., García-Vite, A., Beltrán-Lagunes, L., Hoyo-Vadillo, C., García-Mena, J., 2020. Characterization of the Gut Microbiota of Individuals at Different T2D Stages Reveals a Complex Relationship with the Host. Microorganisms 8, E94. https://doi.org/10.3390/microorganisms8010094

Chen, L., Chen, R., Wang, H., Liang, F., 2015. Mechanisms Linking Inflammation to Insulin Resistance [WWW Document]. Int. J. Endocrinol. https://doi.org/10.1155/2015/508409

Chen, Y.-C., Tao, N.-L., Hu, S.-Y., Tsai, H.-Y., Liao, S.-C., Tsai, W.-L., Hu, C.-Y., 2021. Effect of Tempeh on Gut Microbiota and Anti-Stress Activity in Zebrafish. Int. J. Mol. Sci. 22, 12660. https://doi.org/10.3390/ijms222312660

Chen, Y.-R., Zheng, H.-M., Zhang, G.-X., Chen, F.-L., Chen, L.-D., Yang, Z.-C., 2020. High Oscillospira abundance indicates constipation and low BMI in the Guangdong Gut Microbiome Project. Sci. Rep. 10, 9364. https://doi.org/10.1038/s41598-020-66369-z

Cho, N.H., Shaw, J.E., Karuranga, S., Huang, Y., Fernandes, J.D. da R., Ohlrogge, A.W., Malanda, B., 2018. IDF Diabetes Atlas: Global estimates of diabetes prevalence for 2017 and projections for 2045. Diabetes Res. Clin. Pract. 138, 271–281. https://doi.org/10.1016/j.diabres.2018.02.023

Choi, M.S., Jung, U.J., Yeo, J., Kim, M.J., Lee, M.K., 2008. Genistein and daidzein prevent diabetes onset by elevating insulin level and altering hepatic gluconeogenic

UNIVERSITAS GADJAH MADA
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and lipogenic enzyme activities in non-obese diabetic (NOD) mice. Diabetes Metab. Res. Rev. 24, 74–81. https://doi.org/10.1002/dmrr.780

Chun, J., Kim, G.M., Lee, K.W., Choi, I.D., Kwon, G.-H., Park, J.-Y., Jeong, S.-J., Kim, J.-S., Kim, J.H., 2007. Conversion of isoflavone glucosides to aglycones in soymilk by fermentation with lactic acid bacteria. J. Food Sci. 72, M39-44. https://doi.org/10.1111/j.1750-3841.2007.00276.x

Chun, J., Kim, J.S., Kim, J.H., 2008. Enrichment of isoflavone aglycones in soymilk by fermentation with single and mixed cultures of Streptococcus infantarius 12 and Weissella sp. 4. Food Chem. 109, 278–284. https://doi.org/10.1016/j.foodchem.2007.12.024

Coda, R., Rizzello, C.G., Pinto, D., Gobbetti, M., 2012. Selected lactic acid bacteria synthesize antioxidant peptides during sourdough fermentation of cereal flours. Appl. Environ. Microbiol. 78, 1087–1096. https://doi.org/10.1128/AEM.06837-11

Corso, G., Esposito, M., Gallo, M., Russo, A.D., Antonio, M., 1993. Transformation of arginine into ornithine during the preparation of its tert-butyldimethylsilyl derivative for analysis by gas chromatography/mass spectrometry. Biol. Mass Spectrom. 22, 698–702. https://doi.org/10.1002/bms.1200221205

Coulibaly, K., Coulibaly, K.J., Thierry, L., Akpa, E., Bernadette, G., Niamke, S., Dosso, M., 2017. Probiotic profiling of Leuconostoc species isolated from a traditional fermented cassava product. Afr. J. Microbiol. Res. 11, 408–413. https://doi.org/10.5897/AJMR2017.8457

Couvigny, B., de Wouters, T., Kaci, G., Jacouton, E., Delorme, C., Doré, J., Renault, P., Blottière, H.M., Guédon, E., Lapaque, N., 2015. Commensal Streptococcus salivarius Modulates PPARγ Transcriptional Activity in Human Intestinal Epithelial Cells. PLoS ONE 10, e0125371. https://doi.org/10.1371/journal.pone.0125371

Cox, A.J., Zhang, P., Bowden, D.W., Devereaux, B., Davoren, P.M., Cripps, A.W., West, N.P., 2017. Increased intestinal permeability as a risk factor for type 2 diabetes. Diabetes Metab. 43, 163–166. https://doi.org/10.1016/j.diabet.2016.09.004

Cuesta-Zuluaga, J. de la, Mueller, N.T., Corrales-Agudelo, V., Velásquez-Mejía, E.P., Carmona, J.A., Abad, J.M., Escobar, J.S., 2017. Metformin Is Associated With Higher Relative Abundance of Mucin-Degrading Akkermansia muciniphila and Several Short-Chain Fatty Acid–Producing Microbiota in the Gut. Diabetes Care 40, 54–62. https://doi.org/10.2337/dc16-1324

Curtis, P.J., Sampson, M., Potter, J., Dhatariya, K., Kroon, P.A., Cassidy, A., 2012. Chronic ingestion of flavan-3-ols and isoflavones improves insulin sensitivity and

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PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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lipoprotein status and attenuates estimated 10-year CVD risk in medicated postmenopausal women with type 2 diabetes: a 1-year, double-blind, randomized, controlled trial. Diabetes Care 35, 226–232. https://doi.org/10.2337/dc11-1443

d'Hennezel, E., Abubucker, S., Murphy, L.O., Cullen, T.W., 2017. Total Lipopolysaccharide from the Human Gut Microbiome Silences Toll-Like Receptor Signaling. mSystems 2. https://doi.org/10.1128/mSystems.00046-17

Damayanti, E., Ratisiwi, F.N., Istiqomah, L., Sembiring, L., Febrisiantosa, A., 2017. Phytate degrading activities of lactic acid bacteria isolated from traditional fermented food. Presented at the PROCEEDINGS FROM THE 14TH INTERNATIONAL SYMPOSIUM ON THERAPEUTIC ULTRASOUND, Las Vegas, Nevada, USA, p. 020053. https://doi.org/10.1063/1.4978126

De Angelis, M., Di Cagno, R., Huet, C., Crecchio, C., Fox, P.F., Gobbetti, M., 2004. Heat Shock Response in Lactobacillus plantarum. Appl. Environ. Microbiol. 70, 1336–1346. https://doi.org/10.1128/AEM.70.3.1336-1346.2004

de Goffau, M.C., Luopajärvi, K., Knip, M., Ilonen, J., Ruohtula, T., Härkönen, T., Orivuori, L., Hakala, S., Welling, G.W., Harmsen, H.J., Vaarala, O., 2013. Fecal microbiota composition differs between children with β-cell autoimmunity and those without. Diabetes 62, 1238–1244. https://doi.org/10.2337/db12-0526

De Vadder, F., Kovatcheva-Datchary, P., Goncalves, D., Vinera, J., Zitoun, C., Duchampt, A., Bäckhed, F., Mithieux, G., 2014. Microbiota-generated metabolites promote metabolic benefits via gut-brain neural circuits. Cell 156, 84–96. https://doi.org/10.1016/j.cell.2013.12.016

Delaere, F., Duchampt, A., Mounien, L., Seyer, P., Duraffourd, C., Zitoun, C., Thorens, B., Mithieux, G., 2012. The role of sodium-coupled glucose co-transporter 3 in the satiety effect of portal glucose sensing. Mol. Metab. 2, 47–53. https://doi.org/10.1016/j.molmet.2012.11.003

Demigné, C., Morand, C., Levrat, M.-A., Besson, C., Moundras, C., Rémésy, C., 1995. Effect of propionate on fatty acid and cholesterol synthesis and on acetate metabolism in isolated rat hepatocytes. Br. J. Nutr. 74, 209–219. https://doi.org/10.1079/BJN19950124

Demirci, M., Bahar Tokman, H., Taner, Z., Keskin, F.E., Çağatay, P., Ozturk Bakar, Y., Özyazar, M., Kiraz, N., Kocazeybek, B.S., 2020. Bacteroidetes and Firmicutes levels in gut microbiota and effects of hosts TLR2/TLR4 gene expression levels in adult type 1 diabetes patients in Istanbul, Turkey. J. Diabetes Complications 34, 107449. https://doi.org/10.1016/j.jdiacomp.2019.107449

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PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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den Besten, G., Bleeker, A., Gerding, A., van Eunen, K., Havinga, R., van Dijk, T.H., Oosterveer, M.H., Jonker, J.W., Groen, A.K., Reijngoud, D.-J., Bakker, B.M., 2015. Short-Chain Fatty Acids Protect Against High-Fat Diet-Induced Obesity via a PPARγ-Dependent Switch From Lipogenesis to Fat Oxidation. Diabetes 64, 2398–2408. https://doi.org/10.2337/db14-1213

den Besten, G., van Eunen, K., Groen, A.K., Venema, K., Reijngoud, D.-J., Bakker, B.M., 2013. The role of short-chain fatty acids in the interplay between diet, gut microbiota, and host energy metabolism. J. Lipid Res. 54, 2325–2340. https://doi.org/10.1194/jlr.R036012

Depommier, C., Everard, A., Druart, C., Plovier, H., Van Hul, M., Vieira-Silva, S., Falony, G., Raes, J., Maiter, D., Delzenne, N.M., de Barsy, M., Loumaye, A., Hermans, M.P., Thissen, J.-P., de Vos, W.M., Cani, P.D., 2019. Supplementation with Akkermansia muciniphila in overweight and obese human volunteers: a proof-of-concept exploratory study. Nat. Med. 25, 1096–1103. https://doi.org/10.1038/s41591-019-0495-2

Dewi, P., Afifah, D., Rustanti, N., Sulchan, M., Anjani, G., 2018. The Effect of Tempeh Gembus Variations to Serum Levels of High Sensitivity C-Reactive Protein (hsCRP) and Serum Levels of Fibrinogen of Sprague Dawley Rats with Aterogenic Diet. Romanian J. Diabetes Nutr. Metab. Dis. 25, 91–97. https://doi.org/10.2478/rjdnmd-2018-0010

Diakite, A., Dubourg, G., Dione, N., Afouda, P., Bellali, S., Ngom, I.I., Valles, C., Tall, M. lamine, Lagier, J.-C., Raoult, D., 2020. Optimization and standardization of the culturomics technique for human microbiome exploration. Sci. Rep. 10, 9674. https://doi.org/10.1038/s41598-020-66738-8

Ding, M., Pan, A., Manson, J.E., Willett, W.C., Malik, V., Rosner, B., Giovannucci, E., Hu, F.B., Sun, Q., 2016. Consumption of soy foods and isoflavones and risk of type 2 diabetes: a pooled analysis of three US cohorts. Eur. J. Clin. Nutr. 70, 1381–1387. https://doi.org/10.1038/ejcn.2016.117

Direktorat Gizi Masyarakat, 2018. Tabel Komposisi Pangan Indonesia. Kementrian Kesehatan Republik Indonesia, Jakarta.

Dong, H.-L., Tang, X.-Y., Yunyang, D., Zhong, Q.-W., Wang, C., Zhang, Z.-Q., Chen, Y.M., 2020. Urinary equol, but not daidzein and genistein, was inversely associated with the risk of type 2 diabetes in Chinese adults. Eur. J. Nutr. 59. https://doi.org/10.1007/s00394-019-01939-0

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
RIO JATI KUSUMA, Prof. dr. Madarina Julia, Sp.A(K), Ph.D; Dr. dr. Emy Huriyati, M.Kes; Ir. Jaka Widada, Ph.D
Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Donohoe, D.R., Garge, N., Zhang, X., Sun, W., O'Connell, T.M., Bunger, M.K., Bultman, S.J., 2011. The microbiome and butyrate regulate energy metabolism and autophagy in the mammalian colon. Cell Metab. 13, 517–526. https://doi.org/10.1016/j.cmet.2011.02.018

Donsì, F., Ferrari, G., Lenza, E., Maresca, P., 2009. Main factors regulating microbial inactivation by high-pressure homogenization: Operating parameters and scale of operation. Chem. Eng. Sci. 64, 520–532. https://doi.org/10.1016/j.ces.2008.10.002

Dordević, D., Jančíková, S., Vítězová, M., Kushkevych, I., 2021. Hydrogen sulfide toxicity in the gut environment: Meta-analysis of sulfate-reducing and lactic acid bacteria in inflammatory processes. J. Adv. Res., Chemistry, Biology and Clinical Applications of the Third Gasotransmitter, Hydrogen Sulfide (H2S) 27, 55–69. https://doi.org/10.1016/j.jare.2020.03.003

Doumatey, A.P., Adeyemo, A., Zhou, J., Lei, L., Adebamowo, S.N., Adebamowo, C., Rotimi, C.N., 2020. Gut Microbiome Profiles Are Associated With Type 2 Diabetes in Urban Africans. Front. Cell. Infect. Microbiol. 10, 63. https://doi.org/10.3389/fcimb.2020.00063

Edgar, R.C., 2013. UPARSE: highly accurate OTU sequences from microbial amplicon reads. Nat. Methods 10, 996–998. https://doi.org/10.1038/nmeth.2604

Edgar, R.C., Haas, B.J., Clemente, J.C., Quince, C., Knight, R., 2011. UCHIME improves sensitivity and speed of chimera detection. Bioinformatics 27, 2194–2200. https://doi.org/10.1093/bioinformatics/btr381

Edgerton, D.S., Kraft, G., Smith, M., Farmer, B., Williams, P.E., Coate, K.C., Printz, R.L., O'Brien, R.M., Cherrington, A.D., 2017. Insulin's direct hepatic effect explains the inhibition of glucose production caused by insulin secretion. JCI Insight 2. https://doi.org/10.1172/jci.insight.91863

Effertz, M.E., Denman, P., Slavin, J.L., 1991. The effect of soy polysaccharide on body weight, serum lipids, blood glucose, and fecal parameters in moderately obese adults. Nutr. Res. 11, 849–859. https://doi.org/10.1016/S0271-5317(05)80613-X

Efriwati, E., Nuraida, L., 2013. Effect of Two Production Methods on Macro Nutrient and Isoflavone-aglycone Composition in Tempeh Produced by Household Industries. Health Sci. J. Indones. 4, 69–73. https://doi.org/10.22435/hsji.v4i2

Egert, M., Friedrich, M., 2003. Formation of Pseudo-Terminal Restriction Fragments, a PCR-Related Bias Affecting Terminal Restriction Fragment Length Polymorphism Analysis of Microbial Community Structure. Appl. Environ. Microbiol. 69, 2555–62. https://doi.org/10.1128/AEM.69.5.2555-2562.2003

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

El-Kordy, E.A., Alshahrani, A.M., 2015. Effect of genistein, a natural soy isoflavone, on pancreatic β-cells of streptozotocin-induced diabetic rats: Histological and immunohistochemical study. J. Microsc. Ultrastruct. 3, 108–119. https://doi.org/10.1016/j.jmau.2015.03.005

Ericsson, A.C., Gagliardi, J., Bouhan, D., Spollen, W.G., Givan, S.A., Franklin, C.L., 2018. The influence of caging, bedding, and diet on the composition of the microbiota in different regions of the mouse gut. Sci. Rep. 8, 4065. https://doi.org/10.1038/s41598-018-21986-7

Everard, A., Belzer, C., Geurts, L., Ouwerkerk, J.P., Druart, C., Bindels, L.B., Guiot, Y., Derrien, M., Muccioli, G.G., Delzenne, N.M., de Vos, W.M., Cani, P.D., 2013. Cross-talk between Akkermansia muciniphila and intestinal epithelium controls diet-induced obesity. Proc. Natl. Acad. Sci. U. S. A. 110, 9066–9071. https://doi.org/10.1073/pnas.1219451110

Fabersani, E., Portune, K., Campillo, I., López-Almela, I., la Paz, S.M., Romaní-Pérez, M., Benítez-Páez, A., Sanz, Y., 2021. Bacteroides uniformis CECT 7771 alleviates inflammation within the gut-adipose tissue axis involving TLR5 signaling in obese mice. Sci. Rep. 11, 11788. https://doi.org/10.1038/s41598-021-90888-y

Fessard, A., Remize, F., 2017. Why Are Weissella spp. Not Used as Commercial Starter Cultures for Food Fermentation? Fermentation 3, 38. https://doi.org/10.3390/fermentation3030038

Flibert, G., Tankoano, A., Savadogo, A., 2016. African cassava Traditional Fermented Food: The Microorganism's Contribution to their Nutritional and Safety Values-A Review. Int. J. Curr. Microbiol. Appl. Sci. 5, 664–687. https://doi.org/10.20546/ijcmas.2016.510.074

Fu, N., Chen, X.D., 2011. Towards a maximal cell survival in convective thermal drying processes. Food Res. Int. 44, 1127–1149. https://doi.org/10.1016/j.foodres.2011.03.053

Fu, Z., Zhang, W., Zhen, W., Lum, H., Nadler, J., Bassaganya-Riera, J., Jia, Z., Wang, Y., Misra, H., Liu, D., 2010. Genistein induces pancreatic beta-cell proliferation through activation of multiple signaling pathways and prevents insulin-deficient diabetes in mice. Endocrinology 151, 3026–3037. https://doi.org/10.1210/en.2009-1294

Fusco, V., Quero, G., Cho, G.-S., Kabisch, J., Meske, D., Neve, H., Bockelmann, W., Franz, C., 2015. The Genus Weissella: Taxonomy, Ecology and Biotechnological Potential. Front. Microbiol. 6. https://doi.org/10.3389/fmicb.2015.00155

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Ganesan, K., Xu, B., 2019. Anti-Diabetic Effects and Mechanisms of Dietary Polysaccharides. Molecules 24, 2556. https://doi.org/10.3390/molecules24142556

Gao, Z., Yin, J., Zhang, J., Ward, R.E., Martin, R.J., Lefevre, M., Cefalu, W.T., Ye, J., 2009. Butyrate Improves Insulin Sensitivity and Increases Energy Expenditure in Mice. Diabetes 58, 1509–1517. https://doi.org/10.2337/db08-1637

Gavin, P.G., Mullaney, J.A., Loo, D., Cao, K.-A.L., Gottlieb, P.A., Hill, M.M., Zipris, D., Hamilton-Williams, E.E., 2018. Intestinal Metaproteomics Reveals Host-Microbiota Interactions in Subjects at Risk for Type 1 Diabetes. Diabetes Care 41, 2178–2186. https://doi.org/10.2337/dc18-0777

Ghasemi, A., Khalifi, S., Jedi, S., 2014. Streptozotocin-nicotinamide-induced rat model of type 2 diabetes (review). Acta Physiol. Hung. 101, 408–420. https://doi.org/10.1556/APhysiol.101.2014.4.2

Gill, C., van de Wijgert, J.H.H.M., Blow, F., Darby, A.C., 2016. Evaluation of Lysis Methods for the Extraction of Bacterial DNA for Analysis of the Vaginal Microbiota. PLoS ONE 11, e0163148. https://doi.org/10.1371/journal.pone.0163148

Gill, S.R., Pop, M., Deboy, R.T., Eckburg, P.B., Turnbaugh, P.J., Samuel, B.S., Gordon, J.I., Relman, D.A., Fraser-Liggett, C.M., Nelson, K.E., 2006. Metagenomic analysis of the human distal gut microbiome. Science 312, 1355–1359. https://doi.org/10.1126/science.1124234

Ginter, E., Simko, V., 2012. Type 2 diabetes mellitus, pandemic in 21st century. Adv. Exp. Med. Biol. 771, 42–50.

Gophna, U., Konikoff, T., Nielsen, H.B., 2017. Oscillospira and related bacteria - From metagenomic species to metabolic features. Environ. Microbiol. 19, 835–841. https://doi.org/10.1111/1462-2920.13658

Grasset, E., Puel, A., Charpentier, J., Collet, X., Christensen, J.E., Tercé, F., Burcelin, R., 2017. A Specific Gut Microbiota Dysbiosis of Type 2 Diabetic Mice Induces GLP-1 Resistance through an Enteric NO-Dependent and Gut-Brain Axis Mechanism. Cell Metab. 26, 278. https://doi.org/10.1016/j.cmet.2017.06.003

Guerville, M., Leroy, A., Sinquin, A., Laugerette, F., Michalski, M.-C., Boudry, G., 2017. Western-diet consumption induces alteration of barrier function mechanisms in the ileum that correlates with metabolic endotoxemia in rats. Am. J. Physiol. Endocrinol. Metab. 313, E107–E120. https://doi.org/10.1152/ajpendo.00372.2016

Haenen, D., Zhang, J., Souza da Silva, C., Bosch, G., van der Meer, I.M., van Arkel, J., van den Borne, J.J.G.C., Pérez Gutiérrez, O., Smidt, H., Kemp, B., Müller, M.,

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Hooiveld, G.J.E.J., 2013. A Diet High in Resistant Starch Modulates Microbiota Composition, SCFA Concentrations, and Gene Expression in Pig Intestine. J. Nutr. 143, 274–283. https://doi.org/10.3945/jn.112.169672

Hamel, F.G., Bennett, R.G., Upward, J.L., Duckworth, W.C., 2001. Insulin Inhibits Peroxisomal Fatty Acid Oxidation in Isolated Rat Hepatocytes. Endocrinology 142, 2702–2706. https://doi.org/10.1210/endo.142.6.8178

Han, J.-L., Lin, H.-L., 2014. Intestinal microbiota and type 2 diabetes: from mechanism insights to therapeutic perspective. World J. Gastroenterol. 20, 17737–17745. https://doi.org/10.3748/wjg.v20.i47.17737

Han, Z., Sun, J., Lv, A., Wang, A., 2018. Biases from different DNA extraction methods in intestine microbiome research based on 16S rDNA sequencing: a case in the koi carp, Cyprinus carpio var. Koi. MicrobiologyOpen 8, e00626. https://doi.org/10.1002/mbo3.626

Harsch, I., Konturek, P., 2018. The Role of Gut Microbiota in Obesity and Type 2 and Type 1 Diabetes Mellitus: New Insights into “Old” Diseases. Med. Sci. 6, 32. https://doi.org/10.3390/medsci6020032

Hashim, H.O., Al-Shuhaib, M.B.S., 2019. Exploring the Potential and Limitations of PCR-RFLP and PCR-SSCP for SNP Detection: A Review. J. Appl. Biotechnol. Rep. 6, 137–144. https://doi.org/10.29252/JABR.06.04.02

Hedemann, M.S., Theil, P.K., Bach Knudsen, K.E., 2009. The thickness of the intestinal mucous layer in the colon of rats fed various sources of non-digestible carbohydrates is positively correlated with the pool of SCFA but negatively correlated with the proportion of butyric acid in digesta. Br. J. Nutr. 102, 117–125. https://doi.org/10.1017/S0007114508143549

Hill, C., Guarner, F., Reid, G., Gibson, G.R., Merenstein, D.J., Pot, B., Morelli, L., Canani, R.B., Flint, H.J., Salminen, S., Calder, P.C., Sanders, M.E., 2014. The International Scientific Association for Probiotics and Prebiotics consensus statement on the scope and appropriate use of the term probiotic. Nat. Rev. Gastroenterol. Hepatol. 11, 506–514. https://doi.org/10.1038/nrgastro.2014.66

Hou, Q., Bai, X., Li, W., Gao, X., Zhang, F., Sun, Z., Zhang, H., 2018. Design of Primers for Evaluation of Lactic Acid Bacteria Populations in Complex Biological Samples. Front. Microbiol. 9, 2045. https://doi.org/10.3389/fmicb.2018.02045

Houghton, D., Hardy, T., Stewart, C., Errington, L., Day, C.P., Trenell, M.I., Avery, L., 2018. Systematic review assessing the effectiveness of dietary intervention on gut

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

microbiota in adults with type 2 diabetes. Diabetologia 61, 1700–1711. https://doi.org/10.1007/s00125-018-4632-0

Hsiao, Y.-H., Ho, C.-T., Pan, M.-H., 2020. Bioavailability and health benefits of major isoflavone aglycones and their metabolites. J. Funct. Foods 74, 104164. https://doi.org/10.1016/j.jff.2020.104164

Hu, Yaomin, Liu, W., Chen, Y., Zhang, M., Wang, L., Zhou, H., Wu, P., Teng, X., Dong, Y., Zhou, J. wen, Xu, H., Zheng, J., Li, S., Tao, T., Hu, Yumei, Jia, Y., 2010. Combined use of fasting plasma glucose and glycated hemoglobin A1c in the screening of diabetes and impaired glucose tolerance. Acta Diabetol. 47, 231–236. https://doi.org/10.1007/s00592-009-0143-2

Huang, Y., Li, S.-C., Hu, J., Ruan, H.-B., Guo, H.-M., Zhang, H.-H., Wang, X., Pei, Y.-F., Pan, Y., Fang, C., 2018. Gut microbiota profiling in Han Chinese with type 1 diabetes. Diabetes Res. Clin. Pract. 141, 256–263. https://doi.org/10.1016/j.diabres.2018.04.032

Huang, Y.-C., Wu, B.-H., Chu, Y.-L., Chang, W.-C., Wu, M.-C., 2018. Effects of Tempeh Fermentation with Lactobacillus plantarum and Rhizopus oligosporus on Streptozotocin-Induced Type II Diabetes Mellitus in Rats. Nutrients 10. https://doi.org/10.3390/nu10091143

Hughes, J.B., Hellmann, J.J., Ricketts, T.H., Bohannan, B.J.M., 2001. Counting the Uncountable: Statistical Approaches to Estimating Microbial Diversity. Appl. Environ. Microbiol. 67, 4399–4406. https://doi.org/10.1128/AEM.67.10.4399-4406.2001

Hugon, P., Dufour, J.-C., Colson, P., Fournier, P.-E., Sallah, K., Raoult, D., 2015. A comprehensive repertoire of prokaryotic species identified in human beings. Lancet Infect. Dis. 15, 1211–1219. https://doi.org/10.1016/S1473-3099(15)00293-5

International Diabetes Federation, 2015. IDF Diabetes Atlas, Seventh Edition. ed. Karakas Print, Belgium.

Izaguirre, J.K., Barañano, L., Castañón, S., Alkorta, I., Quirós, L.M., Garbisu, C., 2021. Optimization of the Bioactivation of Isoflavones in Soymilk by Lactic Acid Bacteria. Processes 9, 963. https://doi.org/10.3390/pr9060963

Jati Kusuma, R., Ermamilia, A., 2018. Fortification of tempeh with encapsulated iron improves iron status and gut microbiota composition in iron deficiency anemia condition. Nutr. Food Sci. 48, 962–972. https://doi.org/10.1108/NFS-01-2018-0027

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Jayagopal, V., Albertazzi, P., Kilpatrick, E.S., Howarth, E.M., Jennings, P.E., Hepburn, D.A., Atkin, S.L., 2002. Beneficial effects of soy phytoestrogen intake in postmenopausal women with type 2 diabetes. Diabetes Care 25, 1709–1714. https://doi.org/10.2337/diacare.25.10.1709

Jin, F., Zhang, J., Shu, L., Han, W., 2021. Association of dietary fiber intake with newly-diagnosed type 2 diabetes mellitus in middle-aged Chinese population. Nutr. J. 20, 1–8. https://doi.org/10.1186/s12937-021-00740-2

Johnson, J.S., Spakowicz, D.J., Hong, B.-Y., Petersen, L.M., Demkowicz, P., Chen, L., Leopold, S.R., Hanson, B.M., Agresta, H.O., Gerstein, M., Sodergren, E., Weinstock, G.M., 2019. Evaluation of 16S rRNA gene sequencing for species and strain-level microbiome analysis. Nat. Commun. 10, 5029. https://doi.org/10.1038/s41467-019-13036-1

Juhnke, M.E., Jardin, E.D., 1989. Selective Medium for Isolation of Xanthomonas maltophilia from Soil and Rhizosphere Environmentst. APPL Env. MICROBIOL 55, 747–750.

Kaci, G., Goudercourt, D., Dennin, V., Pot, B., Doré, J., Ehrlich, S.D., Renault, P., Blottière, H.M., Daniel, C., Delorme, C., 2014. Anti-inflammatory properties of Streptococcus salivarius, a commensal bacterium of the oral cavity and digestive tract. Appl. Environ. Microbiol. 80, 928–934. https://doi.org/10.1128/AEM.03133-13

Kaci, G., Lakhdari, O., Doré, J., Ehrlich, S.D., Renault, P., Blottière, H.M., Delorme, C., 2011. Inhibition of the NF-kappaB pathway in human intestinal epithelial cells by commensal Streptococcus salivarius. Appl. Environ. Microbiol. 77, 4681–4684. https://doi.org/10.1128/AEM.03021-10

Kadar, A.D., Aditiawati, P., Astawan, M., Putri, S.P., Fukusaki, E., 2018. Gas chromatography coupled with mass spectrometry-based metabolomics for the classification of tempe from different regions and production processes in Indonesia. J. Biosci. Bioeng. 126, 411–416. https://doi.org/10.1016/j.jbiosc.2018.03.020

Kadowaki, T., Ohno, S., Taniguchi, Y., Inagawa, H., Kohchi, C., Soma, G.-I., 2013. Induction of Nitric Oxide Production in RAW264.7 Cells under Serum-free Conditions by O-antigen Polysaccharide of Lipopolysaccharide. Anticancer Res. 33, 2875–2879.

Kaiser, A.B., Zhang, N., Pluijm, W.V.D., 2018. Global Prevalence of Type 2 Diabetes over the Next Ten Years (2018-2028). Diabetes 67. https://doi.org/10.2337/db18-202-LB

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Kameda, T., Aoki, H., Yanaka, N., Kumrungsee, T., Kato, N., 2018. Production of Isoflavone Aglycone-enriched Tempeh with *Rhizopus stolonifer*. Food Sci. Technol. Res. 24, 493–499. https://doi.org/10.3136/fstr.24.493

Kanghae, A, Eungwanichayapant, P.D,, Chukeatirote, E, 2017. Fatty acid profiles of fermented soybean prepared by Bacillus subtilis and Rhizopus oligosporus. Environ. Exp. Biol. 15, 173–175. https://doi.org/10.22364/eeb.15.16

Karlsson, F.H., Tremaroli, V., Nookaew, I., Bergström, G., Behre, C.J., Fagerberg, B., Nielsen, J., Bäckhed, F., 2013. Gut metagenome in European women with normal, impaired and diabetic glucose control. Nature 498, 99–103. https://doi.org/10.1038/nature12198

Kementerian Kesehatan, 2019. ANGKA KECUKUPAN GIZI YANG DIANJURKAN UNTUK MASYARAKAT INDONESIA.

Kesh, K., Mendez, R., Abdelrahman, L., Banerjee, Santanu, Banerjee, Sulagna, 2020. Type 2 diabetes induced microbiome dysbiosis is associated with therapy resistance in pancreatic adenocarcinoma. Microb. Cell Factories 19, 75. https://doi.org/10.1186/s12934-020-01330-3

Koh, A., De Vadder, F., Kovatcheva-Datchary, P., Bäckhed, F., 2016. From Dietary Fiber to Host Physiology: Short-Chain Fatty Acids as Key Bacterial Metabolites. Cell 165, 1332–1345. https://doi.org/10.1016/j.cell.2016.05.041

Konikoff, T., Gophna, U., 2016. Oscillospira: a Central, Enigmatic Component of the Human Gut Microbiota. Trends Microbiol. 24, 523–524. https://doi.org/10.1016/j.tim.2016.02.015

Konya, J., Sathyapalan, T., Kilpatrick, E.S., Atkin, S.L., 2019. The Effects of Soy Protein and Cocoa With or Without Isoflavones on Glycemic Control in Type 2 Diabetes. A Double-Blind, Randomized, Placebo-Controlled Study. Front. Endocrinol. 10, 296. https://doi.org/10.3389/fendo.2019.00296

Kormin, S., Rusul, G., Radu, S., Ling, F.H., 2001. Bacteriocin-producing lactic Acid bacteria isolated from traditional fermented food. Malays. J. Med. Sci. MJMS 8, 63–68.

Krajmalnik-Brown, R., Ilhan, Z.-E., Kang, D.-W., DiBaise, J.K., 2012. Effects of gut microbes on nutrient absorption and energy regulation. Nutr. Clin. Pract. Off. Publ. Am. Soc. Parenter. Enter. Nutr. 27, 201–214. https://doi.org/10.1177/0884533611436116

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Křížová, L., Dadáková, K., Kašparovská, J., Kašparovský, T., 2019. Isoflavones. Mol. Basel Switz. 24, E1076. https://doi.org/10.3390/molecules24061076

Kuligowski, M., Jasińska-Kuligowska, I., Nowak, J., 2013. Evaluation of bean and soy tempeh influence on intestinal bacteria and estimation of antibacterial properties of bean tempeh. Pol. J. Microbiol. 62, 189–194.

Kuryłowicz, A., 2021. The Role of Isoflavones in Type 2 Diabetes Prevention and Treatment—A Narrative Review. Int. J. Mol. Sci. 22, 218. https://doi.org/10.3390/ijms22010218

Kusuma, R., Widada, J., Huriyati, E., Julia, M., 2021. Naturally Acquired Lactic Acid Bacteria from Fermented Cassava Improves Nutrient and Anti-dysbiosis Activity of Soy Tempeh | Open Access Macedonian Journal of Medical Sciences. Open Access Maced. J. Med. Sci. 9, 1148–55.

Kuzuya, T., Nakagawa, S., Satoh, J., Kanazawa, Y., Iwamoto, Y., Kobayashi, M., Nanjo, K., Sasaki, A., Seino, Y., Ito, C., Shima, K., Nonaka, K., Kadowaki, T., 2002. Report of the Committee on the classification and diagnostic criteria of diabetes mellitus. Diabetes Res. Clin. Pract. 55, 65–85.

Lagier, J.-C., Dubourg, G., Million, M., Cadoret, F., Bilen, M., Fenollar, F., Levasseur, A., Rolain, J.-M., Fournier, P.-E., Raoult, D., 2018. Culturing the human microbiota and culturomics. Nat. Rev. Microbiol. 16, 540–550. https://doi.org/10.1038/s41579-018-0041-0

Lagier, J.-C., Khelaifia, S., Alou, M.T., Ndongo, S., Dione, N., Hugon, P., Caputo, A., Cadoret, F., Traore, S.I., Seck, E.H., Dubourg, G., Durand, G., Mourembou, G., Guilhot, E., Togo, A., Bellali, S., Bachar, D., Cassir, N., Bittar, F., Delerce, J., Mailhe, M., Ricaboni, D., Bilen, M., Dangui Nieko, N.P.M., Dia Badiane, N.M., Valles, C., Mouelhi, D., Diop, K., Million, M., Musso, D., Abrahão, J., Azhar, E.I., Bibi, F., Yasir, M., Diallo, A., Sokhna, C., Djossou, F., Vitton, V., Robert, C., Rolain, J.M., La Scola, B., Fournier, P.-E., Levasseur, A., Raoult, D., 2016. Culture of previously uncultured members of the human gut microbiota by culturomics. Nat. Microbiol. 1, 16203. https://doi.org/10.1038/nmicrobiol.2016.203

Larsen, N., Vogensen, F.K., van den Berg, F.W.J., Nielsen, D.S., Andreasen, A.S., Pedersen, B.K., Al-Soud, W.A., Sørensen, S.J., Hansen, L.H., Jakobsen, M., 2010. Gut Microbiota in Human Adults with Type 2 Diabetes Differs from Non-Diabetic Adults. PLoS ONE 5. https://doi.org/10.1371/journal.pone.0009085

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Layden, B.T., Angueira, A.R., Brodsky, M., Durai, V., Lowe, W.L., 2013. Short chain fatty acids and their receptors: new metabolic targets. Transl. Res. J. Lab. Clin. Med. 161, 131–140. https://doi.org/10.1016/j.trsl.2012.10.007

Le Chatelier, E., Nielsen, T., Qin, J., Prifti, E., Hildebrand, F., Falony, G., Almeida, M., Arumugam, M., Batto, J.-M., Kennedy, S., Leonard, P., Li, J., Burgdorf, K., Grarup, N., Jørgensen, T., Brandslund, I., Nielsen, H.B., Juncker, A.S., Bertalan, M., Levenez, F., Pons, N., Rasmussen, S., Sunagawa, S., Tap, J., Tims, S., Zoetendal, E.G., Brunak, S., Clément, K., Doré, J., Kleerebezem, M., Kristiansen, K., Renault, P., Sicheritz-Ponten, T., de Vos, W.M., Zucker, J.-D., Raes, J., Hansen, T., MetaHIT consortium, Bork, P., Wang, J., Ehrlich, S.D., Pedersen, O., 2013. Richness of human gut microbiome correlates with metabolic markers. Nature 500, 541–546. https://doi.org/10.1038/nature12506

Le Leu, R.K., Brown, I.L., Hu, Y., Bird, A.R., Jackson, M., Esterman, A., Young, G.P., 2005. A synbiotic combination of resistant starch and Bifidobacterium lactis facilitates apoptotic deletion of carcinogen-damaged cells in rat colon. J. Nutr. 135, 996–1001.

Lebovitz, H.E., Banerji, M.A., 2018. Ketosis-Prone Diabetes (Flatbush Diabetes): an Emerging Worldwide Clinically Important Entity. Curr. Diab. Rep. 18. https://doi.org/10.1007/s11892-018-1075-4

Lee, C.J., Sears, C.L., Maruthur, N., 2019. Gut microbiome and its role in obesity and insulin resistance. Ann. N. Y. Acad. Sci. nyas.14107. https://doi.org/10.1111/nyas.14107

Lee, D.-S., Lee, S.-H., 2001. Genistein, a soy isoflavone, is a potent α-glucosidase inhibitor. FEBS Lett. 501, 84–86. https://doi.org/10.1016/S0014-5793(01)02631-X

Lee, K.W., Han, N.S., Kim, J.H., 2012. Purification and characterization of beta-glucosidase from Weissella cibaria 37. J. Microbiol. Biotechnol. 22, 1705–1713. https://doi.org/10.4014/jmb.1206.06007

Legendre, P., Condit, R., 2019. Spatial and temporal analysis of beta diversity in the Barro Colorado Island forest dynamics plot, Panama. For. Ecosyst. 6, 7. https://doi.org/10.1186/s40663-019-0164-4

Leiss, V., Flockerzie, K., Novakovic, A., Rath, M., Schönsiegel, A., Birnbaumer, L., Schürmann, A., Harteneck, C., Nürnberg, B., 2014. Insulin secretion stimulated by l-arginine and its metabolite l-ornithine depends on Gαi2. Am. J. Physiol. - Endocrinol. Metab. 307, E800–E812. https://doi.org/10.1152/ajpendo.00337.2014

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Lestari, L.A., Setyabudi, F.M.C.S., Julia, M., Amalia, L.D., 2013. Effect of Synbiotic Yogurt Made with Indigenous Probiotic Lactobacillus plantarum Mut7 and Sweet Potato Fiber (Ipomoea batatas) in Healthy Children. Int. Res. J. Microbiol. 4, 98–102.

Levrat, M.A., Rémésy, C., Demigné, C., 1991. High propionic acid fermentations and mineral accumulation in the cecum of rats adapted to different levels of inulin. J. Nutr. 121, 1730–1737. https://doi.org/10.1093/jn/121.11.1730

Li, D., Chen, H., Mao, B., Yang, Q., Zhao, J., Gu, Z., Zhang, H., Chen, Y.Q., Chen, W., 2017. Microbial Biogeography and Core Microbiota of the Rat Digestive Tract. Sci. Rep. 8, 45840. https://doi.org/10.1038/srep45840

Li, L., Pan, M., Pan, S., Li, W., Zhong, Y., Hu, J., Nie, S., 2020. Effects of insoluble and soluble fibers isolated from barley on blood glucose, serum lipids, liver function and caecal short-chain fatty acids in type 2 diabetic and normal rats. Food Chem. Toxicol. 135, 110937. https://doi.org/10.1016/j.fct.2019.110937

Li, Q., Chang, Y., Zhang, K., Chen, H., Tao, S., Zhang, Z., 2020. Implication of the gut microbiome composition of type 2 diabetic patients from northern China. Sci. Rep. 10, 5450. https://doi.org/10.1038/s41598-020-62224-3

Li, S.-W., Chen, Y.-S., Lee, Y.-S., Yang, C.-H., Srionnual, S., Wu, H.-C., Chang, C.-H., 2017. Comparative genomic analysis of bacteriocin-producing Weissella cibaria 110. Appl. Microbiol. Biotechnol. 101, 1227–1237. https://doi.org/10.1007/s00253-016-8073-8

Lin, H.V., Frassetto, A., Kowalik, E.J., Nawrocki, A.R., Lu, M.M., Kosinski, J.R., Hubert, J.A., Szeto, D., Yao, X., Forrest, G., Marsh, D.J., 2012. Butyrate and propionate protect against diet-induced obesity and regulate gut hormones via free fatty acid receptor 3-independent mechanisms. PloS One 7, e35240. https://doi.org/10.1371/journal.pone.0035240

Lin, S., Zhang, H., Wang, X., Lin, T., Chen, Z., Liu, J., Wang, J., 2021. Abundance of Lipopolysaccharide Heptosyltransferase I in Human Gut Microbiome and Its Association With Cardiovascular Disease and Liver Cirrhosis. Front. Microbiol. 12, 756976. https://doi.org/10.3389/fmicb.2021.756976

Lin, T.-L., Shu, C.-C., Chen, Y.-M., Lu, J.-J., Wu, T.-S., Lai, W.-F., Tzeng, C.-M., Lai, H.-C., Lu, C.-C., 2020. Like Cures Like: Pharmacological Activity of Anti-Inflammatory Lipopolysaccharides From Gut Microbiome. Front. Pharmacol. 11.

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Liu, G., Liang, L., Yu, G., Li, Q., 2018. Pumpkin polysaccharide modifies the gut microbiota during alleviation of type 2 diabetes in rats. Int. J. Biol. Macromol. 115, 711–717. https://doi.org/10.1016/j.ijbiomac.2018.04.127

Liu, Z., Chen, Y., Ho, S.C., Ho, Y.P., Woo, J., 2010. Effects of soy protein and isoflavones on glycemic control and insulin sensitivity: a 6-mo double-blind, randomized, placebo-controlled trial in postmenopausal Chinese women with prediabetes or untreated early diabetes. Am. J. Clin. Nutr. 91, 1394–1401. https://doi.org/10.3945/ajcn.2009.28813

Louis, P., Duncan, S.H., McCrae, S.I., Millar, J., Jackson, M.S., Flint, H.J., 2004. Restricted distribution of the butyrate kinase pathway among butyrate-producing bacteria from the human colon. J. Bacteriol. 186, 2099–2106. https://doi.org/10.1128/JB.186.7.2099-2106.2004

Ma, Q., Li, Y., Wang, J., Li, P., Duan, Y., Dai, H., An, Y., Cheng, L., Wang, Tieshan, Wang, C., Wang, Ting, Zhao, B., 2020. Investigation of gut microbiome changes in type 1 diabetic mellitus rats based on high-throughput sequencing. Biomed. Pharmacother. 124, 109873. https://doi.org/10.1016/j.biopha.2020.109873

Macfarlane, G.T., Macfarlane, S., 2012. Bacteria, colonic fermentation, and gastrointestinal health. J. AOAC Int. 95, 50–60. https://doi.org/10.5740/jaoacint.sge_macfarlane

Magnone, M., Emionite, L., Guida, L., Vigliarolo, T., Sturla, L., Spinelli, S., Buschiazzo, A., Marini, C., Sambuceti, G., De Flora, A., Orengo, A.M., Cossu, V., Ferrando, S., Barbieri, O., Zocchi, E., 2020. Insulin-independent stimulation of skeletal muscle glucose uptake by low-dose abscisic acid via AMPK activation. Sci. Rep. 10, 1454. https://doi.org/10.1038/s41598-020-58206-0

Manders, R.J., Little, J.P., Forbes, S.C., Candow, D.G., 2012. Insulinotropic and Muscle Protein Synthetic Effects of Branched-Chain Amino Acids: Potential Therapy for Type 2 Diabetes and Sarcopenia. Nutrients 4, 1664–1678. https://doi.org/10.3390/nu4111664

Mantzoros, C.S., Flier, J.S., 1995. Insulin resistance: the clinical spectrum. Adv. Endocrinol. Metab. 6, 193–232.

Marsono, Y., Illman, R.J., Clarke, J.M., Trimble, R.P., Topping, D.L., 1993. Plasma lipids and large bowel volatile fatty acids in pigs fed on white rice, brown rice and rice bran. Br. J. Nutr. 70, 503–513. https://doi.org/10.1079/BJN19930144

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Matos, J., Matos, I., Calha, M., Santos, P., Duarte, I., Cardoso, Y., Faleiro, M.L., 2021. Insights from Bacteroides Species in Children with Type 1 Diabetes. Microorganisms 9, 1436. https://doi.org/10.3390/microorganisms9071436

Mayengbam, S., Lambert, J.E., Parnell, J.A., Tunnicliffe, J.M., Nicolucci, A.C., Han, J., Sturzenegger, T., Shearer, J., Mickiewicz, B., Vogel, H.J., Madsen, K.L., Reimer, R.A., 2019. Impact of dietary fiber supplementation on modulating microbiota-host-metabolic axes in obesity. J. Nutr. Biochem. 64, 228–236. https://doi.org/10.1016/j.jnutbio.2018.11.003

Mayo, B., Vázquez, L., Flórez, A.B., 2019. Equol: A Bacterial Metabolite from The Daidzein Isoflavone and Its Presumed Beneficial Health Effects. Nutrients 11, 2231. https://doi.org/10.3390/nu11092231

McAuley, K.A., Williams, S.M., Mann, J.I., Walker, R.J., Lewis-Barned, N.J., Temple, L.A., Duncan, A.W., 2001. Diagnosing Insulin Resistance in the General Population. Diabetes Care 24, 460–464.

Michlmayr, H., Kneifel, W., 2014. β-Glucosidase activities of lactic acid bacteria: mechanisms, impact on fermented food and human health. FEMS Microbiol. Lett. 352, 1–10. https://doi.org/10.1111/1574-6968.12348

Mihardja, L., Soetrisno, U., Soegondo, S., 2014. Prevalence and clinical profile of diabetes mellitus in productive aged urban Indonesians. J. Diabetes Investig. 5, 507–512. https://doi.org/10.1111/jdi.12177

Mo, H., Kariluoto, S., Piironen, V., Zhu, Y., Sanders, M.G., Vincken, J.-P., Wolkers-Rooijackers, J., Nout, M.J.R., 2013. Effect of soybean processing on content and bioaccessibility of folate, vitamin B12 and isoflavones in tofu and tempe. Food Chem. 141, 2418–2425. https://doi.org/10.1016/j.foodchem.2013.05.017

Mohammadifard, N., Sajjadi, F., Haghighatdoost, F., 2021. Effects of soy consumption on metabolic parameters in patients with metabolic syndrome: A systematic review and meta-analysis. EXCLI J. 20, 665–685. https://doi.org/10.17179/excli2021-3348

Mokoena, M.P., Chelule, P.K., Gqaleni, N., 2006. The toxicity and decreased concentration of aflatoxin B1 in natural lactic acid fermented maize meal. J. Appl. Microbiol. 100, 773–777. https://doi.org/10.1111/j.1365-2672.2006.02881.x

Moreno, M.R.F., Leisner, J.J., Tee, L.K., Ley, C., Radu, S., Rusul, G., Vancanneyt, M., De Vuyst, L., 2002. Microbial analysis of Malaysian tempeh, and characterization of two bacteriocins produced by isolates of Enterococcus faecium. J. Appl. Microbiol. 92, 147–157. https://doi.org/10.1046/j.1365-2672.2002.01509.x

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Morrison, D.J., Preston, T., 2016. Formation of short chain fatty acids by the gut microbiota and their impact on human metabolism. Gut Microbes 7, 189–200. https://doi.org/10.1080/19490976.2015.1134082

Muccioli, G.G., Naslain, D., Bäckhed, F., Reigstad, C.S., Lambert, D.M., Delzenne, N.M., Cani, P.D., 2010. The endocannabinoid system links gut microbiota to adipogenesis. Mol. Syst. Biol. 6, 392. https://doi.org/10.1038/msb.2010.46

Mueller, M., Thorell, A., Claudel, T., Jha, P., Koefeler, H., Lackner, C., Hoesel, B., Fauler, G., Stojakovic, T., Einarsson, C., Marschall, H.-U., Trauner, M., 2015. Ursodeoxycholic acid exerts farnesoid X receptor-antagonistic effects on bile acid and lipid metabolism in morbid obesity. J. Hepatol. 62, 1398–1404. https://doi.org/10.1016/j.jhep.2014.12.034

Mueller, N.T., Odegaard, A.O., Gross, M.D., Koh, W.-P., Yu, M.C., Yuan, J.-M., Pereira, M.A., 2012. Soy intake and risk of type 2 diabetes mellitus in Chinese Singaporeans. Eur. J. Nutr. 51, 1033–1040. https://doi.org/10.1007/s00394-011-0276-2

Müller, M., Hernández, M.A.G., Goossens, G.H., Reijnders, D., Holst, J.J., Jocken, J.W.E., Eijk, H. van, Canfora, E.E., Blaak, E.E., 2019. Circulating but not faecal short-chain fatty acids are related to insulin sensitivity, lipolysis and GLP-1 concentrations in humans. Sci. Rep. 9, 1–9. https://doi.org/10.1038/s41598-019-48775-0

Murri, M., Leiva, I., Gomez-Zumaquero, J.M., Tinahones, F.J., Cardona, F., Soriguer, F., Queipo-Ortuño, M.I., 2013. Gut microbiota in children with type 1 diabetes differs from that in healthy children: a case-control study. BMC Med. 11, 46. https://doi.org/10.1186/1741-7015-11-46

Mursyid, Astawan, M., Muchtadi, D., Wresdiyati, T., Widowati, S., Bintari, S.H., Suwarno, M., 2014. Evaluasi Nilai Gizi Protein Tepung Tempe yang Terbuat dari Varietas Kedelai Impor dan Lokal. J. Pangan 23, 33–41. https://doi.org/10.33964/jp.v23i1.48

Nair, A.B., Jacob, S., 2016. A simple practice guide for dose conversion between animals and human. J. Basic Clin. Pharm. 7, 27–31. https://doi.org/10.4103/0976-0105.177703

Nakamura, Y., Nagai, Y., Kobayashi, T., Furukawa, K., Oikawa, Y., Shimada, A., Tanaka, Y., 2019. Characteristics of Gut Microbiota in Patients With Diabetes Determined by Data Mining Analysis of Terminal Restriction Fragment Length Polymorphisms. J. Clin. Med. Res. 11, 401–406. https://doi.org/10.14740/jocmr3791

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PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Nataraj, B.H., Ali, S.A., Behare, P.V., Yadav, H., 2020. Postbiotics-parabiotics: the new horizons in microbial biotherapy and functional foods. Microb. Cell Factories 19, 168. https://doi.org/10.1186/s12934-020-01426-w

(NCD-RisC), N.C.D.R.F.C., 2015. Effects of diabetes definition on global surveillance of diabetes prevalence and diagnosis: a pooled analysis of 96 population-based studies with 331 288 participants. Lancet Diabetes Endocrinol. 3, 624–637. https://doi.org/10.1016/S2213-8587(15)00129-1

Neves, A.L., Coelho, J., Couto, L., Leite-Moreira, A., Roncon-Albuquerque, R., 2013. Metabolic endotoxemia: a molecular link between obesity and cardiovascular risk. J. Mol. Endocrinol. 51, R51–R64. https://doi.org/10.1530/JME-13-0079

Nguyen, C.T., Pham, N.M., Do, V.V., Binns, C.W., Hoang, V.M., Dang, D.A., Lee, A.H., 2017. Soyfood and isoflavone intake and risk of type 2 diabetes in Vietnamese adults. Eur. J. Clin. Nutr. 71, 1186–1192. https://doi.org/10.1038/ejcn.2017.76

Nicholson, J.K., Holmes, E., Kinross, J., Burcelin, R., Gibson, G., Jia, W., Pettersson, S., 2012. Host-gut microbiota metabolic interactions. Science 336, 1262–1267. https://doi.org/10.1126/science.1223813

Nogal, A., Valdes, A.M., Menni, C., 2021. The role of short-chain fatty acids in the interplay between gut microbiota and diet in cardio-metabolic health. Gut Microbes 13, 1897212. https://doi.org/10.1080/19490976.2021.1897212

Nomura, K., Ishikawa, D., Okahara, K., Ito, S., Haga, K., Takahashi, M., Arakawa, A., Shibuya, T., Osada, T., Kuwahara-Arai, K., Kirikae, T., Nagahara, A., 2021. Bacteroidetes Species Are Correlated with Disease Activity in Ulcerative Colitis. J. Clin. Med. 10, 1749. https://doi.org/10.3390/jcm10081749

Nout, M.J.R., Kiers, J.L., 2005. Tempe fermentation, innovation and functionality: update into the third millenium. J. Appl. Microbiol. 98, 789–805. https://doi.org/10.1111/j.1365-2672.2004.02471.x

Novotni, D., Curic, D., Bituh, M., Colic Baric, I., Skevin, D., Cukelj, N., 2011. Glycemic index and phenolics of partially-baked frozen bread with sourdough. Int. J. Food Sci. Nutr. 62, 26–33. https://doi.org/10.3109/09637486.2010.506432

Nuraida, L., 2015. A review: Health promoting lactic acid bacteria in traditional Indonesian fermented foods. Food Sci. Hum. Wellness 4, 47–55. https://doi.org/10.1016/j.fshw.2015.06.001

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Nurdini, A.L., Nuraida, L., Suwanto, A., Suliantari, 2015. Microbial growth dynamics during tempe fermentation in two different home industries. Int. Food Res. J. 22, 1668–1674.

Oh, Y.S., Bae, G.D., Baek, D.J., Park, E.-Y., Jun, H.-S., 2018. Fatty Acid-Induced Lipotoxicity in Pancreatic Beta-Cells During Development of Type 2 Diabetes. Front. Endocrinol. 9. https://doi.org/10.3389/fendo.2018.00384

Ohira, H., Tsutsui, W., Fujioka, Y., 2017. Are Short Chain Fatty Acids in Gut Microbiota Defensive Players for Inflammation and Atherosclerosis? J. Atheroscler. Thromb. 24, 660–672. https://doi.org/10.5551/jat.RV17006

O'Neal, K.S., Johnson, J.L., Panak, R.L., 2016. Recognizing and Appropriately Treating Latent Autoimmune Diabetes in Adults. Diabetes Spectr. 29, 249–252. https://doi.org/10.2337/ds15-0047

Padakandla, S.R., Das, T., Sai Prashanthi, G., Angadi, K.K., Reddy, S.S., Reddy, G.B., Shivaji, S., 2021. Dysbiosis in the Gut Microbiome in Streptozotocin-Induced Diabetes Rats and Follow-Up During Retinal Changes. Invest. Ophthalmol. Vis. Sci. 62, 31. https://doi.org/10.1167/iovs.62.10.31

Pan, L., Han, Y., Zhou, Z., 2020. In vitro prebiotic activities of exopolysaccharide from Leuconostoc pseudomesenteroides XG5 and its effect on the gut microbiota of mice. J. Funct. Foods 67, 103853. https://doi.org/10.1016/j.jff.2020.103853

Pangastuti, A., Alfisah, R.K., Istiana, N.I., Sari, S.L.A., Setyaningsih, R., Susilowati, A., Purwoko, T., 2019. Metagenomic analysis of microbial community in over-fermented tempeh. Biodiversitas J. Biol. Divers. 20, 1106–1114. https://doi.org/10.13057/biodiv/d200423

Park, H.S., Jung, H.Y., Park, E.Y., Kim, J., Lee, W.J., Bae, Y.S., 2004. Cutting edge: direct interaction of TLR4 with NAD(P)H oxidase 4 isozyme is essential for lipopolysaccharide-induced production of reactive oxygen species and activation of NF-kappa B. J. Immunol. Baltim. Md 1950 173, 3589–3593. https://doi.org/10.4049/jimmunol.173.6.3589

Patterson, E., Marques, T.M., O'Sullivan, O., Fitzgerald, P., Fitzgerald, G.F., Cotter, P.D., Dinan, T.G., Cryan, J.F., Stanton, C., Ross, R.P. 2015, 2015. Streptozotocin-induced type-1-diabetes disease onset in Sprague–Dawley rats is associated with an altered intestinal microbiota composition and decreased diversity. Microbiology 161, 182–193. https://doi.org/10.1099/mic.0.082610-0

Pedersen, C., Gallagher, E., Horton, F., Ellis, R.J., Ijaz, U.Z., Wu, H., Jaiyeola, E., Diribe, O., Duparc, T., Cani, P.D., Gibson, G.R., Hinton, P., Wright, J., La Ragione,

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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

R., Robertson, M.D., 2016. Host-microbiome interactions in human type 2 diabetes following prebiotic fibre (galacto-oligosaccharide) intake. Br. J. Nutr. 116, 1869–1877. https://doi.org/10.1017/S0007114516004086

Prakash, O., Pandey, P.K., Kulkarni, G.J., Mahale, K.N., Shouche, Y.S., 2014. Technicalities and Glitches of Terminal Restriction Fragment Length Polymorphism (T-RFLP). Indian J. Microbiol. 54, 255–261. https://doi.org/10.1007/s12088-014-0461-0

Pramudito, T.E., Putri, E., Paluphi, E., Yogiara, Y., 2021. The effect of starter culture on bacterial profile in soybean tempeh. Food Res. 5, 380–389. https://doi.org/10.26656/fr.2017.5(1).436

Prasetyastuti, P., Ghozali, D.S., 2021. The Effects of Soyferment-Tempeh on Lipid Profile, Retinol-Binding Protein 4 (RBP4), and Phosphoenolpyruvate Carboxykinase (PEPCK) Gene Expression in Type 2 Diabetic Mice. Indones. J. Pharm. 193–200. https://doi.org/10.22146/ijp.1354

Priyadarshini, M., Kotlo, K.U., Dudeja, P.K., Layden, B.T., 2018. Role of Short Chain Fatty Acid Receptors in Intestinal Physiology and Pathophysiology. Compr. Physiol. 8, 1091–1115. https://doi.org/10.1002/cphy.c170050

Priyadarshini, M., Wicksteed, B., Schiltz, G.E., Gilchrist, A., Layden, B.T., 2016. SCFA Receptors in Pancreatic Beta Cells: Novel Diabetes Targets? Trends Endocrinol. Metab. TEM 27, 653–664. https://doi.org/10.1016/j.tem.2016.03.011

Purwandari, U, Nava, N., Hidayati, D., 2014. Modeling and Optimising the Growth of Lasiodiplodia theobromae During Gathotan Fermentation. Microbiol. Indones. 8, 4–4. https://doi.org/10.5454/mi.8.3.4

Purwandari, U., Tristiana, G.R., Hidayati, D., 2014. Gluten-free noodle made from gathotan flour: Antioxidant activity and effect of consumption on blood glucose level. Int. Food Res. J. 21, 1951–1956.

Puspaningtyas, D.E., Sari, P.M., Kusuma, R.J., 2018. Exploring the potency of gathotan and gathot as diabetes functional food: resistant starch analysis. IOP Conf. Ser. Earth Environ. Sci. 207, 012042. https://doi.org/10.1088/1755-1315/207/1/012042

Qaid, M.M., Abdelrahman, M.M., 2016. Role of insulin and other related hormones in energy metabolism—A review. Cogent Food Agric. 2, 1267691. https://doi.org/10.1080/23311932.2016.1267691

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Qin, J., Li, Y., Cai, Z., Li, Shenghui, Zhu, J., Zhang, F., Liang, S., Zhang, W., Guan, Y., Shen, D., Peng, Y., Zhang, D., Jie, Z., Wu, W., Qin, Y., Xue, W., Li, J., Han, L., Lu, D., Wu, P., Dai, Y., Sun, X., Li, Z., Tang, A., Zhong, S., Li, X., Chen, W., Xu, R., Wang, M., Feng, Q., Gong, M., Yu, J., Zhang, Y., Zhang, M., Hansen, T., Sanchez, G., Raes, J., Falony, G., Okuda, S., Almeida, M., LeChatelier, E., Renault, P., Pons, N., Batto, J.-M., Zhang, Z., Chen, H., Yang, R., Zheng, W., Li, Songgang, Yang, H., Wang, Jian, Ehrlich, S.D., Nielsen, R., Pedersen, O., Kristiansen, K., Wang, Jun, 2012. A metagenome-wide association study of gut microbiota in type 2 diabetes. Nature 490, 55–60. https://doi.org/10.1038/nature11450

Quast, C., Pruesse, E., Yilmaz, P., Gerken, J., Schweer, T., Yarza, P., Peplies, J., Glöckner, F.O., 2013. The SILVA ribosomal RNA gene database project: improved data processing and web-based tools. Nucleic Acids Res. 41, D590–D596. https://doi.org/10.1093/nar/gks1219

R Radita, A Suwanto, N Kurosawa, A.T Wahyudi, I Rusmana, 2018. Firmicutes is the predominant bacteria in tempeh. Int. Food Res. J. 25, 2313–2320.

Rachmawati, N.A., 2021. Potensi Isolat Protein Tempe dalam Menanggulangi Stres Oksidatif pada Tikus Diabetes (Thesis). IPB University.

Radita, R., Suwanto, A., Kurosawa, N., Wahyudi, A.T., Rusmana, I., 2017. Metagenome analysis of tempeh production: Where did the bacterial community in tempeh come from? 9.

Rahayu, E.S., 2003. Lactic Acid Bacteria in Fermented Foods of Indonesian Origin. Agritech 23, 75–84. https://doi.org/10.22146/agritech.13515

Rahayu, E.S., agung yogeswara, I., Windiarti, L., Utami, T., Watanabe, K., Marotta, F., 2015. Molecular characteristics of indigenous probiotic strains from Indonesia. Int. J. Probiotics Prebiotics 10, 109–115.

Rahayu, W.P., Pambayun, R., Santoso, U., Nuraida, L., Ardiansyah, A., 2015. Tinjauan ilmiah teknologi pengolahan tempe kedelai. Perhimpunan Ahli Teknologi Pangan Indonesia (PATPI).

Rath, C.M., Dorrestein, P.C., 2012. The bacterial chemical repertoire mediates metabolic exchange within gut microbiomes. Curr. Opin. Microbiol. 15, 147–154. https://doi.org/10.1016/j.mib.2011.12.009

Rizal, S., Kustyawati, M.E., Murhadi, Hasanudin, U., 2021. The Growth of Yeast and Fungi, the Formation of β-Glucan, and the Antibacterial Activities during Soybean Fermentation in Producing Tempeh. Int. J. Food Sci. 2021, e6676042. https://doi.org/10.1155/2021/6676042

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Rodriguez-Valera, F., Martin-Cuadrado, A.-B., Rodriguez-Brito, B., Pasić, L., Thingstad, T.F., Rohwer, F., Mira, A., 2009. Explaining microbial population genomics through phage predation. Nat. Rev. Microbiol. 7, 828–836. https://doi.org/10.1038/nrmicro2235

Roglic, G., World Health Organization (Eds.), 2016. Global report on diabetes. World Health Organization, Geneva, Switzerland.

Rohm, B., Scherlach, K., Möbius, N., Partida-Martinez, L.P., Hertweck, C., 2010. Toxin production by bacterial endosymbionts of a Rhizopus microsporus strain used for tempe/sufu processing. Int. J. Food Microbiol. 136, 368–371. https://doi.org/10.1016/j.ijfoodmicro.2009.10.010

Romulo, A., Surya, R., 2021. Tempe: A traditional fermented food of Indonesia and its health benefits. Int. J. Gastron. Food Sci. 26, 100413. https://doi.org/10.1016/j.ijgfs.2021.100413

Roncarati, D., Scarlato, V., 2017. Regulation of heat-shock genes in bacteria: from signal sensing to gene expression output. FEMS Microbiol. Rev. 41, 549–574. https://doi.org/10.1093/femsre/fux015

Roswell, M., Dushoff, J., Winfree, R., 2021. A conceptual guide to measuring species diversity. Oikos 130, 321–338. https://doi.org/10.1111/oik.07202

Roubos-van den Hil, P. J., Dalmas, E., Nout, M.J.R., Abee, T., 2010. Soya bean tempe extracts show antibacterial activity against Bacillus cereus cells and spores. J. Appl. Microbiol. 109, 137–145. https://doi.org/10.1111/j.1365-2672.2009.04637.x

Roubos-van den Hil, P.J., Nout, M.J.R., Beumer, R.R., van der Meulen, J., Zwietering, M.H., 2009. Fermented soya bean (tempe) extracts reduce adhesion of enterotoxigenic Escherichia coli to intestinal epithelial cells. J. Appl. Microbiol. 106, 1013–1021. https://doi.org/10.1111/j.1365-2672.2008.04068.x

Roubos-van den Hil, Petra J., Nout, M.J.R., van der Meulen, J., Gruppen, H., 2010a. Bioactivity of tempe by inhibiting adhesion of ETEC to intestinal cells, as influenced by fermentation substrates and starter pure cultures. Food Microbiol. 27, 638–644. https://doi.org/10.1016/j.fm.2010.02.008

Roubos-van den Hil, Petra J., Schols, H.A., Nout, M.J.R., Zwietering, M.H., Gruppen, H., 2010b. First characterization of bioactive components in soybean tempe that protect human and animal intestinal cells against enterotoxigenic Escherichia coli (ETEC) infection. J. Agric. Food Chem. 58, 7649–7656. https://doi.org/10.1021/jf101379y

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Saeedi, P., Petersohn, I., Salpea, P., Malanda, B., Karuranga, S., Unwin, N., Colagiuri, S., Guariguata, L., Motala, A.A., Ogurtsova, K., Shaw, J.E., Bright, D., Williams, R., 2019. Global and regional diabetes prevalence estimates for 2019 and projections for 2030 and 2045: Results from the International Diabetes Federation Diabetes Atlas, 9th edition. Diabetes Res. Clin. Pract. 157. https://doi.org/10.1016/j.diabres.2019.107843

Salguero, M.V., Al-Obaide, M.A.I., Singh, R., Siepmann, T., Vasylyeva, T.L., 2019. Dysbiosis of Gram-negative gut microbiota and the associated serum lipopolysaccharide exacerbates inflammation in type 2 diabetic patients with chronic kidney disease. Exp. Ther. Med. 18, 3461–3469. https://doi.org/10.3892/etm.2019.7943

Sari, P.M., Puspaningtyas, D.E., Kusuma, R.J., 2017. Dietary fiber and carbohydrate contents of gathotan and gathot as functional food for people with diabetes mellitus. Indones. J. Nutr. Diet. 5, 88–92. http://dx.doi.org/10.21927/ijnd.2016.5(2).88-92

Sathyapalan, T., Rigby, A.S., Bhasin, S., Thatcher, N.J., Kilpatrick, E.S., Atkin, S.L., 2017. Effect of Soy in Men With Type 2 Diabetes Mellitus and Subclinical Hypogonadism: A Randomized Controlled Study. J. Clin. Endocrinol. Metab. 102, 425–433. https://doi.org/10.1210/jc.2016-2875

Sears, B., Perry, M., 2015. The role of fatty acids in insulin resistance. Lipids Health Dis. 14. https://doi.org/10.1186/s12944-015-0123-1

Segata, N., Izard, J., Waldron, L., Gevers, D., Miropolsky, L., Garrett, W.S., Huttenhower, C., 2011. Metagenomic biomarker discovery and explanation. Genome Biol. 12, R60. https://doi.org/10.1186/gb-2011-12-6-r60

Seumahu, C.A., Suwanto, A., Rusmana, I., Solihin, D.D., 2013. Bacterial and Fungal Communities in Tempeh as Reveal by Amplified Ribosomal Intergenic Sequence Analysis. HAYATI J. Biosci. 20, 65–71. https://doi.org/10.4308/hjb.20.2.65

Shen, Z., Zhu, C., Quan, Y., Yang, J., Yuan, W., Yang, Z., Wu, S., Luo, W., Tan, B., Wang, X., 2018. Insights into Roseburia intestinalis which alleviates experimental colitis pathology by inducing anti-inflammatory responses. J. Gastroenterol. Hepatol. 33, 1751–1760. https://doi.org/10.1111/jgh.14144

Shim, J., Kim, Y.J., Lee, H.-S., 2008. Effects of soybean isoflavone extract on the plasma lipid profiles and antioxidant enzyme activity in streptozotocin-induced diabetic rats. Nutr. Res. Pract. 2, 218–226. https://doi.org/10.4162/nrp.2008.2.4.218

UNIVERSITAS GADJAH MADA
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Shin, N.-R., Whon, T.W., Bae, J.-W., 2015. Proteobacteria: microbial signature of dysbiosis in gut microbiota. Trends Biotechnol. 33, 496–503. https://doi.org/10.1016/j.tibtech.2015.06.011

Shipkowski, K.A., Sayers, B.C., Elmore, S.A., Blystone, C.R., Cora, M.C., Fomby, L.M., Foster, P.M., Hejtmancik, M.R., Hooth, M.J., King-Herbert, A.P., Kissling, G.E., Malarkey, D.E., McIntyre, B.S., Painter, J.T., Peace, T.A., Shockley, K.R., Smith-Roe, S.L., Stout, M.D., Travlos, G.S., Tyl, R.W., Vallant, M.K., Vasconcelos, D.Y., Waidyanatha, S., Walker, N.J., Witt, K.L., 2017. NTP Technical Report on the Toxicity Study of Chitosan (CASRN 9012-76-4) Administered in Feed to Sprague Dawley [Crl:CD(SD)] Rats. National Toxicology Program.

Shyu, C., Soule, T., Bent, S.J., Foster, J.A., Forney, L.J., 2007. MiCA: a web-based tool for the analysis of microbial communities based on terminal-restriction fragment length polymorphisms of 16S and 18S rRNA genes. Microb. Ecol. 53, 562–570. https://doi.org/10.1007/s00248-006-9106-0

Sim, W.H., Wagner, J., Cameron, D.J., Catto-Smith, A.G., Bishop, R.F., Kirkwood, C.D., 2010. Novel Burkholderiales 23S rRNA Genes Identified in Ileal Biopsy Samples from Children: Preliminary Evidence that a Subtype Is Associated with Perianal Crohn's Disease. J. Clin. Microbiol. https://doi.org/10.1128/JCM.02261-09

Sjamsuridzal, W., Khasanah, M., Febriani, R., Vebliza, Y., Oetari, A., Santoso, I., Gandjar, I., 2021. The effect of the use of commercial tempeh starter on the diversity of Rhizopus tempeh in Indonesia. Sci. Rep. 11, 23932. https://doi.org/10.1038/s41598-021-03308-6

Soenarto, Y., I, S., Herman, H., M, K., D, K., 2001. Antidiarrheal characteristics of tempe produced traditionally and industrially in children aged 6-24 months with acute diarrhea. Paediatr. Indones. 41, 88–95. https://doi.org/10.14238/pi41.2.2001.88-95

Soka, S., Suwanto, A., Sajuthi, D., Rusmana, I., 2015. Impact of tempeh supplementation on mucosal immunoglobulin A in Sprague-Dawley rats. Food Sci. Biotechnol. 24, 1481–1486. https://doi.org/10.1007/s10068-015-0191-z

Soka, S., Suwanto, A., Sajuthi, D., Rusmana, I., 2014. Impact of Tempeh Supplementation on Gut Microbiota Composition in Sprague-Dawley Rats. Res. J. Microbiol. 9. https://doi.org/10.3923/jm.2014.189.198

Song, D.-F., Zhu, M.-Y., Gu, Q., 2014. Purification and Characterization of Plantaricin ZJ5, a New Bacteriocin Produced by Lactobacillus plantarum ZJ5. PLOS ONE 9, e105549. https://doi.org/10.1371/journal.pone.0105549

UNIVERSITAS GADJAH MADA
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Sonne, D.P., 2021. MECHANISMS IN ENDOCRINOLOGY: FXR signalling: a novel target in metabolic diseases. Eur. J. Endocrinol. 184, R193–R205. https://doi.org/10.1530/EJE-20-1410

Sookoian, S., Salatino, A., Castaño, G.O., Landa, M.S., Fijalkowky, C., Garaycoechea, M., Pirola, C.J., 2020. Intrahepatic bacterial metataxonomic signature in non-alcoholic fatty liver disease. Gut 69, 1483–1491. https://doi.org/10.1136/gutjnl-2019-318811

Sperandeo, P., Martorana, A.M., Polissi, A., 2017. Lipopolysaccharide biogenesis and transport at the outer membrane of Gram-negative bacteria. Biochim. Biophys. Acta BBA - Mol. Cell Biol. Lipids, Bacterial Lipids 1862, 1451–1460. https://doi.org/10.1016/j.bbalip.2016.10.006

Srinivasan, R., Karaoz, U., Volegova, M., MacKichan, J., Kato-Maeda, M., Miller, S., Nadarajan, R., Brodie, E.L., Lynch, S.V., 2015. Use of 16S rRNA Gene for Identification of a Broad Range of Clinically Relevant Bacterial Pathogens. PLOS ONE 10, e0117617. https://doi.org/10.1371/journal.pone.0117617

Stephanie, S., Kartawidjajaputra, F., Silo, W., Yogiara, Y., Suwanto, A., 2018. Tempeh consumption enhanced beneficial bacteria in the human gut. Food Res. 3, 57–63. https://doi.org/10.26656/fr.2017.3(1).230

Stephanie, S., Ratih, N.K., Soka, S., Suwanto, A., 2017. Effect of Tempeh Supplementation on the Profiles of Human Intestinal Immune System and Gut Microbiota. Microbiol. Indones. 11, 2–2. https://doi.org/10.5454/mi.11.1.2

Stodolak, B., Starzyńska-Janiszewska, A., Mika, M., Wikiera, A., 2020. Rhizopus oligosporus and Lactobacillus plantarum Co-Fermentation as a Tool for Increasing the Antioxidant Potential of Grass Pea and Flaxseed Oil-Cake Tempe. Mol. Basel Switz. 25, E4759. https://doi.org/10.3390/molecules25204759

Su, H.-K., Tsai, M.-H., Chao, H.-R., Wu, M.-L., Lu, J.-H., 2021. Data on effect of Tempeh Fermentation on patients with type II diabetes. Data Brief 38, 107310. https://doi.org/10.1016/j.dib.2021.107310

Suarsana, I.N., Priosoeryanti, B.P., Wresdiyati, T., Bintang, M., 2010. Sintesis Glikogen Hati dan Otot pada Tikus Diabetes yang Diberi Ekstrak Tempe. J. Vet. 11, 190–195.

Sudargo, Toto, Jati Kusuma, Rio, Arjuna, Tony, Hasnawati, Rasita Amelia, Ruby, Diananda Septiana, Rohman, Abdul, 2015. Effect of Sodium Iron EDTA Fortification in Tempe in Serum Iron and Ferritin Level of Anemic Female Wistar Rats. Pak. J. Nutr. 14, 88–93.

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Sudargo, Toto, Nisa, Fatma Zuhrotun, Helmiyati, Siti, Jati Kusuma, Rio, Arjuna, Tony, Ruby, Diananda Septiana, 2013. Tempeh with Iron Fortification to Overcome Iron Deficiency Anemia. Pak. J. Nutr. 12, 815–820.

Sudarmadji, S., Markakis, P., 1977. The phytate and phytase of soybean tempeh. J. Sci. Food Agric. 28, 381–383. https://doi.org/10.1002/jsfa.2740280410

Sulistiani, S., Hidayat, I., 2020. Identifikasi molekuler Bakteri Asam Laktat dari Tempe dan Tape Berdasarkan Sekuen Gen 16S rRNA. Maj. Ilm. Biol. Biosf. Sci. J. 37, 69–77. https://doi.org/10.20884/1.mib.2020.37.2.1149

Sun, L., Xie, C., Wang, G., Wu, Y., Wu, Q., Wang, Xuemei, Liu, J., Deng, Y., Xia, J., Chen, B., Zhang, S., Yun, C., Lian, G., Zhang, X., Zhang, H., Bisson, W.H., Shi, J., Gao, X., Ge, P., Liu, C., Krausz, K.W., Nichols, R.G., Cai, J., Rimal, B., Patterson, A.D., Wang, Xian, Gonzalez, F.J., Jiang, C., 2018. Gut microbiota and intestinal FXR mediate the clinical benefits of metformin. Nat. Med. 24, 1919–1929. https://doi.org/10.1038/s41591-018-0222-4

Sun, W., Zhang, D., Wang, Z., Sun, J., Xu, B., Chen, Y., Ding, L., Huang, X., Lv, X., Lu, J., Bi, Y., Xu, Q., 2016. Insulin Resistance is Associated With Total Bile Acid Level in Type 2 Diabetic and Nondiabetic Population: A Cross-Sectional Study. Medicine (Baltimore) 95, e2778. https://doi.org/10.1097/MD.0000000000002778

Sung, K.-C., Reaven, G.M., Kim, S.H., 2010. Utility of Homeostasis Model Assessment of β-Cell Function in Predicting Diabetes in 12,924 Healthy Koreans. Diabetes Care 33, 200–202. https://doi.org/10.2337/dc09-1070

Suresh, S., Radha, K.V., 2015. Effect of a mixed substrate on phytase production by Rhizopus oligosporus MTCC 556 using solid state fermentation and determination of dephytinization activities in food grains. Food Sci. Biotechnol. 24, 551–559. https://doi.org/10.1007/s10068-015-0072-5

Suroto, D.A., Hasan, P.N., Rahayu, E.S., 2021. Genomic insight of two indigenous probiotics Lactobacillus plantarum Dad-13 and Lactobacillus plantarum Mut-7 from different origins of Indonesian fermented foods. Biodiversitas J. Biol. Divers. 22. https://doi.org/10.13057/biodiv/d221233

Sze, M.A., Schloss, P.D., 2016. Looking for a Signal in the Noise: Revisiting Obesity and the Microbiome. mBio 7, e01018-16. https://doi.org/10.1128/mBio.01018-16

Tang, R., Li, L., 2021. Modulation of Short-Chain Fatty Acids as Potential Therapy Method for Type 2 Diabetes Mellitus. Can. J. Infect. Dis. Med. Microbiol. J. Can. Mal. Infect. Microbiol. Médicale 2021, 6632266. https://doi.org/10.1155/2021/6632266

UNIVERSITAS GADJAH MADA
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Teame, T., Wang, A., Xie, M., Zhang, Z., Yang, Y., Ding, Q., Gao, C., Olsen, R.E., Ran, C., Zhou, Z., 2020. Paraprobiotics and Postbiotics of Probiotic Lactobacilli, Their Positive Effects on the Host and Action Mechanisms: A Review. Front. Nutr. 7.

Therdtatha, P., Song, Y., Tanaka, M., Mariyatun, M., Almunifah, M., Manurung, N.E.P., Indriarsih, S., Lu, Y., Nagata, K., Fukami, K., Ikeda, T., Lee, Y.-K., Rahayu, E.S., Nakayama, J., 2021. Gut Microbiome of Indonesian Adults Associated with Obesity and Type 2 Diabetes: A Cross-Sectional Study in an Asian City, Yogyakarta. Microorganisms 9, 897. https://doi.org/10.3390/microorganisms9050897

Thoene-Reineke, C., Fischer, A., Friese, C., Briesemeister, D., Göbel, U.B., Kammertoens, T., Bereswill, S., Heimesaat, M.M., 2014. Composition of intestinal microbiota in immune-deficient mice kept in three different housing conditions. PloS One 9, e113406. https://doi.org/10.1371/journal.pone.0113406

Thomas, N.J., Lynam, A.L., Hill, A.V., Weedon, M.N., Shields, B.M., Oram, R.A., McDonald, T.J., Hattersley, A.T., Jones, A.G., 2019. Type 1 diabetes defined by severe insulin deficiency occurs after 30 years of age and is commonly treated as type 2 diabetes. Diabetologia 62, 1167–1172. https://doi.org/10.1007/s00125-019-4863-8

Topping, D.L., Illman, R.J., Clarke, J.M., Trimble, R.P., Jackson, K.A., Marsono, Y., 1993. Dietary Fat and Fiber Alter Large Bowel and Portal Venous Volatile Fatty Acids and Plasma Cholesterol but Not Biliary Steroids in Pigs. J. Nutr. 123, 133–143. https://doi.org/10.1093/jn/123.1.133

Trabelsi, M.-S., Daoudi, M., Prawitt, J., Ducastel, S., Touche, V., Sayin, S.I., Perino, A., Brighton, C.A., Sebti, Y., Kluza, J., Briand, O., Dehondt, H., Vallez, E., Dorchies, E., Baud, G., Spinelli, V., Hennuyer, N., Caron, S., Bantubungi, K., Caiazzo, R., Reimann, F., Marchetti, P., Lefebvre, P., Bäckhed, F., Gribble, F.M., Schoonjans, K., Pattou, F., Tailleux, A., Staels, B., Lestavel, S., 2015. Farnesoid X receptor inhibits glucagon-like peptide-1 production by enteroendocrine L cells. Nat. Commun. 6, 7629. https://doi.org/10.1038/ncomms8629

Tseng, C.-H., Wu, C.-Y., 2019. The gut microbiome in obesity. J. Formos. Med. Assoc., Gut microbiome in human health and diseases 118, S3–S9. https://doi.org/10.1016/j.jfma.2018.07.009

Turnbaugh, P.J., Hamady, M., Yatsunenko, T., Cantarel, B.L., Duncan, A., Ley, R.E., Sogin, M.L., Jones, W.J., Roe, B.A., Affourtit, J.P., Egholm, M., Henrissat, B., Heath, A.C., Knight, R., Gordon, J.I., 2009. A core gut microbiome in obese and lean twins. Nature 457, 480–484. https://doi.org/10.1038/nature07540

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Umpierrez, G.E., 2006. Ketosis-Prone Type 2 Diabetes: Time to revise the classification of diabetes. Diabetes Care 29, 2755–2757. https://doi.org/10.2337/dc06-1870

Utama, Z., Okazaki, Y., Tomotake, H., Kato, N., 2013. Tempe consumption modulates fecal secondary bile acids, mucins, immunoglobulin A, enzyme activities, and cecal microflora and organic acids in rats. Plant Foods Hum. Nutr. Dordr. Neth. 68, 177–183. https://doi.org/10.1007/s11130-013-0357-x

Utari, D.M., Rimbawan, R., Riyadi, H., Muhilal, M., Purwantyastuti, P., 2011. Potensi Asam Amino pada Tempe untuk Memperbaiki Profil Lipid dan Diabetes Mellitus. Kesmas J. Kesehat. Masy. Nas. Natl. Public Health J. 5, 166–170. https://doi.org/10.21109/kesmas.v5i4.137

Vaarala, O., 2012. Gut Microbiota and Type 1 Diabetes. Rev. Diabet. Stud. RDS 9, 251–259. https://doi.org/10.1900/RDS.2012.9.251

Valdes, A.M., Walter, J., Segal, E., Spector, T.D., 2018. Role of the gut microbiota in nutrition and health. BMJ 361, k2179. https://doi.org/10.1136/bmj.k2179

Vanaja, S.K., Russo, A.J., Behl, B., Banerjee, I., Yankova, M., Deshmukh, S.D., Rathinam, V.A.K., 2016. Bacterial Outer Membrane Vesicles Mediate Cytosolic Localization of LPS and Caspase-11 Activation. Cell 165, 1106–1119. https://doi.org/10.1016/j.cell.2016.04.015

Vatanen, T., Kostic, A.D., d'Hennezel, E., Siljander, H., Franzosa, E.A., Yassour, M., Kolde, R., Vlamakis, H., Arthur, T.D., Hämäläinen, A.-M., Peet, A., Tillmann, V., Uibo, R., Mokurov, S., Dorshakova, N., Ilonen, J., Virtanen, S.M., Szabo, S.J., Porter, J.A., Lähdesmäki, H., Huttenhower, C., Gevers, D., Cullen, T.W., Knip, M., Xavier, R.J., 2016. Variation in Microbiome LPS Immunogenicity Contributes to Autoimmunity in Humans. Cell 165, 842–853. https://doi.org/10.1016/j.cell.2016.04.007

Vázquez, L., Flórez, A.B., Guadamuro, L., Mayo, B., 2017. Effect of Soy Isoflavones on Growth of Representative Bacterial Species from the Human Gut. Nutrients 9. https://doi.org/10.3390/nu9070727

Vital, R.J., Bassinello, P.Z., Cruz, Q.A., Carvalho, R.N., de Paiva, J.C.M., Colombo, A.O., 2018. Production, Quality, and Acceptance of Tempeh and White Bean Tempeh Burgers. Foods 7, 136. https://doi.org/10.3390/foods7090136

Walters, W.A., Xu, Z., Knight, R., 2014. Meta-analyses of human gut microbes associated with obesity and IBD. FEBS Lett., The gut microbiome 588, 4223–4233. https://doi.org/10.1016/j.febslet.2014.09.039

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Wang, B., Yao, M., Lv, L., Ling, Z., Li, L., 2017. The Human Microbiota in Health and Disease. Engineering 3, 71–82. https://doi.org/10.1016/J.ENG.2017.01.008

Wang, Y., Qin, Y., Xie, Q., Zhang, Y., Hu, J., Li, P., 2018. Purification and Characterization of Plantaricin LPL-1, a Novel Class IIa Bacteriocin Produced by Lactobacillus plantarum LPL-1 Isolated From Fermented Fish. Front. Microbiol. 9, 2276. https://doi.org/10.3389/fmicb.2018.02276

Watanabe, N., Endo, Y., FUJIMOTO, K., AOKI, H., 2006. Tempeh-like Fermented Soybean (GABA-tempeh) Has an Effective Influence on Lipid Metabolism in Rats. J. Oleo Sci. 55, 391–396. https://doi.org/10.5650/jos.55.391

Wenzlau, J.M., Hutton, J.C., 2013. Novel Diabetes Autoantibodies and Prediction of Type 1 Diabetes. Curr. Diab. Rep. 13. https://doi.org/10.1007/s11892-013-0405-9

Wild, S., Roglic, G., Green, A., Sicree, R., King, H., 2004. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. Diabetes Care 27, 1047–1053.

Willis, A.D., 2019. Rarefaction, Alpha Diversity, and Statistics. Front. Microbiol. 10, 2407. https://doi.org/10.3389/fmicb.2019.02407

Wirth, R., Bódi, N., Maróti, G., Bagyánszki, M., Talapka, P., Fekete, É., Bagi, Z., Kovács, K.L., 2014. Regionally Distinct Alterations in the Composition of the Gut Microbiota in Rats with Streptozotocin-Induced Diabetes. PLOS ONE 9, e110440. https://doi.org/10.1371/journal.pone.0110440

World Health Organization, 2019. Classification of Diabetes Mellitus 2019. Geneva.

Wu, S., Haron, H., 2018. Nutrient Contents in Tempe Produced from Five Cottage Industries in Selangor, Malaysia. J. Sains Kesihat. Malays. 16, 1–6. https://doi.org/10.17576/jskm-2018-1601-20

Wu, Y., You, Q., Fei, J., Wu, J., 2021. Changes in the gut microbiota: a possible factor influencing peripheral blood immune indexes in non-obese diabetic mice. Antonie Van Leeuwenhoek 114, 1669–1682. https://doi.org/10.1007/s10482-021-01632-5

Wulijideligen, null, Asahina, T., Hara, K., Arakawa, K., Nakano, H., Miyamoto, T., 2012. Production of bacteriocin by Leuconostoc mesenteroides 406 isolated from Mongolian fermented mare's milk, airag. Anim. Sci. J. Nihon Chikusan Gakkaiho 83, 704–711. https://doi.org/10.1111/j.1740-0929.2012.01010.x

Wurster, J.I., Peterson, R.L., Brown, C.E., Penumutchu, S., Guzior, D.V., Neugebauer, K., Sano, W.H., Sebastian, M.M., Quinn, R.A., Belenky, P., 2021.

UNIVERSITAS GADJAH MADA
PENGGUNAAN KECUTAN PADA PROSES FERMENTASI TEMPE UNTUK MEMPERBAIKI PROFIL METABOLIK DAN MIKROBIOM TIKUS YANG DIINDUKSI DIABETES MELLITUS
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Streptozotocin-induced hyperglycemia alters the cecal metabolome and exacerbates antibiotic-induced dysbiosis. Cell Rep. 37, 110113. https://doi.org/10.1016/j.celrep.2021.110113

Xie, X., Liao, J., Ai, Y., Gao, J., Zhao, J., Qu, F., Xu, C., Zhang, Z., Wen, W., Cui, H., Wang, H., 2021. Pi-Dan-Jian-Qing Decoction Ameliorates Type 2 Diabetes Mellitus Through Regulating the Gut Microbiota and Serum Metabolism. Front. Cell. Infect. Microbiol. 11, 748872. https://doi.org/10.3389/fcimb.2021.748872

Yang, J., Li, Y., Wen, Z., Liu, W., Meng, L., Huang, H., 2021. Oscillospira - a candidate for the next-generation probiotics. Gut Microbes 13, 1987783. https://doi.org/10.1080/19490976.2021.1987783

Yecies, J.L., Zhang, H.H., Menon, S., Liu, S., Yecies, D., Lipovsky, A.I., Gorgun, C., Kwiatkowski, D.J., Hotamisligil, G.S., Lee, C.-H., Manning, B.D., 2011. Akt stimulates hepatic SREBP1c and lipogenesis through parallel mTORC1-dependent and independent pathways. Cell Metab. 14, 21–32. https://doi.org/10.1016/j.cmet.2011.06.002

Yin, L., Wan, Y.-D., Pan, X.-T., Zhou, C.-Y., Lin, N., Ma, C.-T., Yao, J., Su, Z., Wan, C., Yu, Y.-W., Zhu, R.-X., 2019. Association Between Gut Bacterial Diversity and Mortality in Septic Shock Patients: A Cohort Study. Med. Sci. Monit. Int. Med. J. Exp. Clin. Res. 25, 7376–7382. https://doi.org/10.12659/MSM.916808

Yin, R., Xue, Y., Hu, J., Hu, X., Shen, Q., 2020. The effects of diet and streptozotocin on metabolism and gut microbiota in a type 2 diabetes mellitus mouse model. Food Agric. Immunol. 31, 723–739. https://doi.org/10.1080/09540105.2020.1761302

Yoshida, N., Emoto, T., Yamashita, T., Watanabe, H., Hayashi, T., Tabata, T., Hoshi, N., Hatano, N., Ozawa, G., Sasaki, N., Mizoguchi, T., Amin, H.Z., Hirota, Y., Ogawa, W., Yamada, T., Hirata, K., 2018. Bacteroides vulgatus and Bacteroides dorei Reduce Gut Microbial Lipopolysaccharide Production and Inhibit Atherosclerosis. Circulation 138, 2486–2498. https://doi.org/10.1161/CIRCULATIONAHA.118.033714

Young, V.B., 2012. The Intestinal Microbiota in Health and Disease. Curr. Opin. Gastroenterol. 28, 63–69. https://doi.org/10.1097/MOG.0b013e32834d61e9

Yuksekdag, Z., Acar, B.C., Aslim, B., Tukenmez, U., 2017. β-Glucosidase activity and bioconversion of isoflavone glycosides to aglycones by potential probiotic bacteria. Int. J. Food Prop. 20, S2878–S2886. https://doi.org/10.1080/10942912.2017.1382506

UNIVERSITAS GADJAH MADA
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Universitas Gadjah Mada, 2022 | Diunduh dari http://etd.repository.ugm.ac.id/

Yulandi, A., Suwanto, A., Waturangi, D.E., Wahyudi, A.T., 2020. Shotgun metagenomic analysis reveals new insights into bacterial community profiles in tempeh. BMC Res. Notes 13, 562. https://doi.org/10.1186/s13104-020-05406-6

Zang, Y., Igarashi, K., Yu, C., 2015. Anti-obese and anti-diabetic effects of a mixture of daidzin and glycitin on C57BL/6J mice fed with a high-fat diet. Biosci. Biotechnol. Biochem. 79, 117–123. https://doi.org/10.1080/09168451.2014.955453

Zhang, L., Qin, Q., Liu, M., Zhang, X., He, F., Wang, G., 2018. Akkermansia muciniphila can reduce the damage of gluco/lipotoxicity, oxidative stress and inflammation, and normalize intestine microbiota in streptozotocin-induced diabetic rats. Pathog. Dis. 76. https://doi.org/10.1093/femspd/fty028

Zhang, X., Shen, D., Fang, Z., Jie, Z., Qiu, X., Zhang, C., Chen, Y., Ji, L., 2013. Human gut microbiota changes reveal the progression of glucose intolerance. PloS One 8, e71108. https://doi.org/10.1371/journal.pone.0071108

Zhang, X.-M., Zhang, Y.-B., Chi, M.-H., 2016. Soy Protein Supplementation Reduces Clinical Indices in Type 2 Diabetes and Metabolic Syndrome. Yonsei Med. J. 57, 681–689. https://doi.org/10.3349/ymj.2016.57.3.681

Zheng, P., Li, Z., Zhou, Z., 2018. Gut microbiome in type 1 diabetes: A comprehensive review. Diabetes Metab. Res. Rev. 34. https://doi.org/10.1002/dmrr.3043

Zhong, H.-J., Yuan, Y., Xie, W.-R., Chen, M.-H., He, X.-X., 2016. Type 2 Diabetes Mellitus Is Associated with More Serious Small Intestinal Mucosal Injuries. PLoS ONE 11. https://doi.org/10.1371/journal.pone.0162354

Zhu, C., Song, K., Shen, Z., Quan, Y., Tan, B., Luo, W., Wu, S., Tang, K., Yang, Z., Wang, X., 2018. Roseburia intestinalis inhibits interleukin-17 excretion and promotes regulatory T cells differentiation in colitis. Mol. Med. Rep. 17, 7567–7574. https://doi.org/10.3892/mmr.2018.8833

Zhu, L., Sha, L., Li, K., Wang, Z., Wang, T., Li, Y., Liu, P., Dong, X., Dong, Y., Zhang, X., Wang, H., 2020. Dietary flaxseed oil rich in omega-3 suppresses severity of type 2 diabetes mellitus via anti-inflammation and modulating gut microbiota in rats. Lipids Health Dis. 19, 20. https://doi.org/10.1186/s12944-019-1167-4

Zulhaerati, Z., Budiarti, S., Astuti, R.I., 2019. Metagenomic Analysis of Bacteria Phylum Firmicutes and Bacteroidetes in Women with Type 2 Diabetes. HAYATI J. Biosci. 26, 110–110. https://doi.org/10.4308/hjb.26.3.110