UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Abramowskia, S.W., Waeberb, G., Gassnerc, C., Buserd, A., Freyc, B.M., Favrate, B. and Tissot, J.D. 2014. Physiology of Iron Metabolism. *Transfusion Medicine and Hemotherapy.* 41(3):213-21

Abudabos, A.M., Okab, A.B., Aljumaah, R.S., Samara, E.M., Abdoun, K.A. and Al-Haidary, A.A. 2013. Nutritional value of green seaweed (Ulva lactuca) for broiler chickens. *Italian Journal of Animal Science*. 12.

Abbaspour, B., Davood, S.S. and Mohammadi-Sangcheshmeh, A. 2014. Dietary supplementation of *Gracilariopsis persica* is associated with some quality related sera and egg yolk parameters in laying quails. J*ournal of the Science of Food and Agriculture*. 95(3):643-8

Achmanu dan Muharlien. 2011. Ilmu Ternak Unggas. UB Press. Malang.

Abdelatty, A.M., Iwaniuk, M.E., Garcia, M., Moyes, K.M, Teter, B.B., Delmonte, P., Kadegowda, A.K.G., Tony, M.A., Mohamad, F.F. and Erdman, R.A. 2017. Effect of short-term feed restriction on temporal changes in milk components and mammary lipogenic gene expression in mid-lactation Holstein dairy cows. *Journal of Dairy Science* 100(5):4000-4013

Ahmed, F., Khan, M.R. and Jackson, A.A. 2001. Concomitant Supplemental Vitamin A Enhances the Response to Weekly Supplemental Iron and Folic Acid in Anemic Teenagers In Urban Bangladesh. *The American Journal of Clinical Nutrition* . 74(1):108-115.

Ali, A. and Memon, M. 2008. Incorporation of Enteromorpha procera Ahlner as nutrition supplement in chick's feed. *International Journal of Biology and Biotechnology*. 5, 211–214.

Akbarillah, T., Kususiyah. dan Hidayat. 2008. Pengaruh Suplementasi Tepung Daun Indigofera Pada Tepung Geplek Sebagai Sumber Energi Pengganti Jagung Kuning Dalam Ransum Puyuh(*Coturnix cotirnix Japonica*) Terhadap Produksi Dan Kuning Telur. *Jurnal. Jurusan Peternakan, Fakultas Pertanian* Universitas Bengkulu.

Akoso, B,T. 1993. Manual Kesehatan Unggas. Yogyakarta: Kanisius

Al-Harthi, M.A.; El-Deek, A.A. 2012. Effect of different dietary concentrations of brown marine algae (*Sargassum dentifebium*) prepared by different methods on plasma and yolk lipid profiles, yolk total carotene and lutein

PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L.
Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus
norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

plus zeaxanthin of laying hens. *The Italian Journal of Animal Science. 11*, 347–353.

Altman, P.L. and Katz, D.D. 2012. *Growth Including Reproduction and Morphological Development.* Washington DC: Literary Licensing.

Almatsier, S. 2001. Prinsip Dasar Ilmu Gizi. PT. Gramedia Pustaka Utama. Jakarta. hlm. 185- 253, 256.

Almatsier, S. 2006. *Prinsip Dasar Ilmu Gizi*. edisi ke-6. Jakarta: Gramedia Pustaka utama.

Altmann, S.W., Davis, H.R, Zhu, L.J, Yao, X., Hoos, L.M, Tetzloff, G., Iyer, S.P, Maguire, M., Golovko, A., Zeng M., Wang, L., Murgolo, N. and Graziano, MP 2004. Niemann-Pick C1 Like 1 protein is critical for intestinal cholesterol absorption. *Science*. 303(5661), 1201–1204.

Ambarsari, L., Febriant, R. dan Purwakusumah, E.D. 2019. Aktivitas Antioksidan Nanopartikel Kurkuminoid Temulawak Balittro secara In Vivo. *Current Biochemistry*. 6(1): 11-27

Andanna, D. dan Sri, S. 2006. Hubungan Konsumsi Protein Hewani dan Zat Besi dengan Kadar Hemoglobin Pada Balita Usia 13-36 Bulan. *The Indonesian Journal Of Public Health* 3(1): 22

Andrews, N.C. 2008. Forging a field: the golden age of iron biology. *Blood*. 15;112(2):219-30. doi: 10.1182/blood-2007-12-077388

Anderson, P.O. and Valdes, V. 2007. Acritical Review of Pharmaceutical Galactagogues. *Breastfeed Medicine*. Vol 2(4):229-42.

Anderson, G.J., Frazer, D. M. and McLaren, G. D. (2017). Iron metabolism and absorption. *Physiological Reviews.* 97(2), 711–767.

Andersson, M. dan Braegger, C.P. 2022. The Role of Iodine for Thyroid Function in Lactating Women and Infants. *Endocrine Reviews* . 43(3), 469–506.

André, M.N. Silva, Moniz, T., Castro, B.d. and Rangel, M. 2021. Human transferrin: An inorganic biochemistry perspective, *Coordination Chemistry Reviews.* 449.

Andrews, N.C. 2008. Forging a field: the golden age of iron biology. *Blood*. 112(2):219-30.

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

AOAC (Association of Official Analytical Chemistry). 2012. Official Method of Analysis. Association of Official Analytical Chemistry 19th Edition. Gaitherburg (US): AOAC

Apriyantono, A., Fardiaz, D., Puspitasari, N.L., Sedarnawati. dan Budiyanto, S. 1989. Petunjuk laboratorium analisis pangan. Bogor (ID): Pusat Antar Universitas Pangan dan Gizi lnstitut Pertanian Bogor

Apriyanto, Y.S., Iriyanti, N. and Tugiyanti, E. 2021. The Effect of Supplementation of Avocado Seed Flour (Persea americana Mill.) in Feed on Blood Lipids Profile and Egg Yolk Cholesterol of Japanese Quail (Corturnix-corturnix japonica). *Animal Production*. 23(1):10-17

Argov-Argaman, N., Altman, H., Janssen, J.N., Daeem, S. and Raz, C. 2024. Mesilati-Stahy R, Penn S, Monsonego-Ornan E. Effect of milk fat globules on growth and metabolism in rats fed an unbalanced diet. *Frontiers in Nutrition.* 11;10:1270171. doi: 10.3389/fnut.2023.1270171.

Arosio, P., Ingrassia, R. and Cavadini, P. 2009. Ferritins: a family of molecules for iron storage, antioxidation and more. *Biochimica et Biophysica Acta*. 1790(7):589-99. doi: 10.1016/j.bbagen.2008.09.004.

Atmadja, W.S., Kadi, A., Sulistijo. dan Rachmaniar. 1996. Pengenalan Jenis-Jenis Rumput Laut Indonesia. Jakarta : Puslitbang Oseanologi-LIPI

Atmokotomo, P., Arlan, A., Sitosari, H., Haniastuti, T. and Jonarta, A.L. 2016. The Effect of Chicken Bone Powder Supplementation during Pregnancy and Lactation on the Calcium Level of Rat Pups' Teeth. in The UGM Annual Scientific Conference Life Sciences. pages 76–85.

Bamishaiye, E.I., Muhammad, N.O. and Bamishaiye. O.M. 2009. Haematological Parameters of Albino Rats Fed on Tiger Nuts (*Cyperus esculentus*) Tuber Oil Meal-based Diet. *The International Journal of Nutrition and Wellness,* 10 (1).

Barnette, A. 2009. About Japanese quail. http://lancester.unl.edu/4h/embryology

Barbara, J. and Bain. 2004. *A Beginner's Guide to Blood Cells*. 2nd Edition. Wiley-Blackwell Publishing Ltd. p 3.

Barros, M.A.V., Andrade, E.B., Barros, R.G.N., Costa, I.K.M., Costa, I.C.L., Vitorino, G.F.A., Andrade, J.J.C., Paulino-Silva, K.M., Nogueira, V.O., de Alves, J.L.B.D. and Costa-Silva, J.H. 2018. Low-protein diet does not alter reproductive, biochemical, and hematological parameters in pregnant Wistar rats. *Brazilian Journal of Medical and Biological Research*. 51(6):e6602. doi: 10.1590/1414-431x20186602.

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Barbalace, M. C., Malaguti, M., Giusti, L., Lucacchini, A., Hrelia, S. and Angeloni, C. 2019. Anti-Inflammatory Activities of Marine Algae in Neurodegenerative Diseases. *International Journal of Molecular Sciences*. *20*(12), 3061. https://doi.org/10.3390/ijms20123061

Basri, H., Saraswati, T.S. and Isdadiyanto, S. 2018. Hematological status of rats (Rattus norvegicus L.) in the lactation period after giving supplements organic quail eggs. *International Journal of Biological Research*. 6 (1): 1-4.

Beard, J.L. 2001. Iron biology in immune function, muscle metabolism and neuronal functioning. *Journal of Nutrition*. 131(2S-2), 568S–580S.

Bess, F. Viera, S.L, Favero, A., Cruz, R.A. and Nascimento. 2012. Dietary iron effects on broiler breeder performance and egg iron contents. *Animal Feed Science and Technology*. Volume 178, Issues 1–2, Pages 67-73

Camille, E., Powe, A.B., Karen, M., Puopolo, M.D., David, S., Newburg, Lönnerdal, B., Chen, C., Allen, M., BSN, RN, IBCLC, Anne Merewood, MPH, IBCLC, Susan Worden, RN, IBCLC. and Corrine K. Welt, MD. 2011. Effects of Recombinant Human Prolactin on Breast Milk Composition. *Pediatrics*. 127(2): e359–e366.

Cao, J., Zhu, J., Zhou, Q., Zhao, L., Zou, C., Guo, Y., Curtin, B., Ji, F., Liu, B. and Yu, D. 2023. Efficacy evaluation of novel organic iron complexes in laying hens: effects on laying performance, egg quality, egg iron content, and blood biochemical parameters. *Animal Bioscience.* 36:498-505

Caponio, G.R., Wang, D.Q., Ciaula, A.D., Angelis, M.D, .dan Portincasa, P. 2020. Pengaturan metabolisme kolesterol oleh komponen bioaktif protein kedelai: bukti translasi baru. *International Journal of Molecular Sciences*. 22(1), 227.

Carrillo, S., Bahena, A., Casas, M., Carranco, M.E., Calvo, C.C., Ávila, E. and Pérez–Gi, F. 2012. The alga *Sargassum* spp. as alternative to reduce egg cholesterol content. *Cuban Journal of Agricultural Science.* 46;2

Carrillo, S., Lopez, E., Casas, M. M., Avila, E., Castillo, R.M., Carranco, M.E., Calvo, C. and Perez-Gil, F. 2008. Potential use of seaweeds in the laying hen ration to improve the quality of n-3 fatty acid enriched eggs. *Journal of Applied Phycology*. 20:721–728

PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L.
Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus
norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Cerf, M. and Herrera, E. 2016. High fat diet administration during specific periods of pregnancy alters maternal fatty acid profiles in the near-term rat. Nutrients. 8:25. doi: 10.3390/nu8010025. https://doi.org/10.3390/nu8010025.

Charoenphandhu, N. 2007. Physical Activity and Exercise Affect Intestinal Calcium Absorption: A Perspective Review. *Journal of Sport Science and Technology*. Vol 7(1):171-81

Chen. and Chu, S.C. 2006. Effects of origins and fermentation time on the antioxidant activities of kombucha. Food Chemistry. 98: 502-507.

Chen, X., Yang, J., Zhou, Y., Wang, Q., Xue, S., Zhang, Y., and Niu, W. 2025. Research Progress and Prospects of Flavonoids in the Treatment of Hyperlipidemia: A Narrative Review. *Molecules*, *30*(15), 3103. https://doi.org/10.3390/molecules30153103

Cho, S.O., Kim, M.H. and Kim, H. 2018. β-Carotene Inhibits Activation of NF-κB, Activator Protein-1, and STAT3 and Regulates Abnormal Expression of Some Adipokines in 3T3-L1 Adipocytes. *Journal of cancer prevention*. 23(1):37-43. doi: 10.15430/JCP.2018.23.1.37.

Cora, M.C., King, D., Betz, L.J., Wilson, R. and Travlos, G.S. 2021. Artifactual changes in Sprague-Dawley rat hematologic parameters after storage of samples at 3 °C and 21 °C. *The Journal of the American Association for Laboratory Animal Science*. 51(5):616-21.

Cordiano, R., Di Gioacchino. M., Mangifesta, R., Panzera, C., Gangemi, S. and Minciullo, P.L. 2023. Malondialdehyde as a potential oxidative stress marker for allergy-oriented diseases: an update. *Molecules*. 28:5979. doi: 10.3390/molecules28165979.

Cregan, M.D., Mitoulas, L.R., Hartmann, P.E. 2002. Milk prolactin, feed volume and duration between feeds in women breastfeeding their full-term infants over a 24 h period. *Experimental Physiology*. 87(2):207-14. doi: 10.1113/eph8702327.

Crider, K.S., Bailey, L.B. and Berry, R.J. 2011. Folic acid food fortification-its history, effect, concerns, and future directions. *Nutrients.* 3(3):370-384.

Cunningham, F.G., Leveno, K.L., Bloom, S.L., Catherine Y. Spong Jodi S. Dashe Barbara L. Hoffman Brian M. Casey Jeanne S. Sheffield. 2005. Williams Obstetrics. 22nd Edition, McGraw-Hill, New York.

Damongilala, J.L., Wewengkang, D.S., Losung, F. and Tallei, E.T. 2021. Phytochemical and Antioxidant Activities of *Eucheuma spinosum* as

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Natural Functional Food from North Sulawesi Waters, Indonesia. *Pakistan Journal of Biological Sciences*. (1):132-138. doi: 10.3923/pjbs.2021.132.138.

Damongilala, L.J., Dotulong, V., Apriyanti, E. and Kurnia, D. 2023. Antioxidant and Antibacterial Activities of the Tropical Red Alga *Eucheuma spinosum*: In Silico Study. *Natural Product Communications.* 1;18(7)

Damongilala, L.J., Wewengkang, D.S., Losung, F. and Tallei, T.E. 2021. Phytochemical and Antioxidant Activities of *Eucheuma spinosum* as Natural Functional Food from North Sulawesi Waters, Indonesia. Pak. *Journal of Biological Sciences.* 24: 132-138.

Daugeras-Bernard, N. and Lachiver, F. 1980. Iodine supply to the thyroid gland in the developing chick embryo. Cell Differ. 1980 Feb;9(1):31-9. doi: 10.1016/0045-6039(80)90005-6. PMID: 7379127.

Delange, F. 2007. Iodine requirements during pregnancy, lactation and the neonatal period and indicators of optimal iodine nutrition. *Public Health Nutrition*: 10(12A), 1571–1580.

Desai, M., Jellyman, J.K., Han, G., Beall, M., Lane, R.H. and Ross, M.G. 2014. Maternal obesity and high-fat diet program offspring metabolic syndrome. *American Journal of Obstetrics & Gynecology*. 211:237.e1–13. https://doi.org/10.1016/j.ajog.2014.03.025.

Desai, M., Ferrini, M.G., Han, G., Narwani. K. and Ross, M.G. 2020. Maternal high fat diet programs male mice offspring hyperphagia and obesity: mechanism of increased appetite neurons via altered neurogenic factors and nutrient sensor AMPK. *Nutrients*. 12:3326. https://doi.org/10.3390/nu12113326.

Desmawati, D., Mahdiyah, A.Y. and Kadri, H. 2023. Effect of high fat and cholesterol diet on total blood cholesterol levels in pregnant Wistar rats. *Majalah Kedokteran Bandung*. 55:7–12. https://doi.org/10.15395/mkb.v55n1.2651

Departemen Kesehatan R.I. 2001. Program Penanggulangan Anemia Gizi pada Wanita Usia Subur (WUS); (Safe Motherhood Project: A Partnership and Family Approach). Direktorat Gizi Masyarakat. Jakarta: Direktorat Jenderal Bina Kesehatan Masyarakat Depkes

Dewi, D.C. and Adang, D. 2014. Analysis Of Blood Sample Lysis Rate On Hemoglobin Examination Results Using Rayto Rt. 7600 Auto Hematology Analyzer. *Folia Medica Indonesiana*. 50(1): 98-105

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Dewey, K.G., Cohen, R.J., Brown, K.H. and Rivera, L.L. 2001. Effects of exclusive breastfeeding for four versus six months on maternal nutritional status and infant motor development: results of two randomized trials in Honduras. *The Journal of Nutrition.* 131, 262-267.

Diharmia, A., Fardiazb, D. and Andarwulan, N. 2019 Chemical and minerals composition of dried seaweed *Eucheuma spinosum* collected from indonesia coastal sea regions. *International Journal of Oceanography*. 13 65-71

Dodson, R.B., Miller, T.A., Powers, K., Yang, Y., Yu, B. and Albertine, K.H. 2017. Intrauterine growth restriction influences vascular remodeling and stiffening in the weanling rat more than sex or diet. *American Journal of Physiology-Heart and Circulatory Physiology*. 312:H250–64. doi: 10.1152/ajpheart.00610.2016.

Dorland. W. 2006. *Kamus Kedokteran Dorland*. Jakarta. EGC.

Dowling, D.K. and Simmons, L.W. 2009. Reactive oxygen species as universal constraints in life-history evolution. *Proceedings of the Royal Society B: Biological Sciences*. 276(1663), 1737–1745.

Dunlea, E., Crushell, E., Cotter, M., Blau, N. and Ferreira, C.R. 2023 Clinical and biochemical footprints of inherited metabolic disease. XVI. Hematological abnormalities. *Molecular Genetics and Metabolism*. 140(4), 107735

Durrant, B.S, Czekala, N., Olson, M.A., Anderson, A., Amodeo, D., Campos-Morales. R., Gual-Sill. F. and Ramos-Garza, J. 2002. Papanicolau Staining of Exfoliated Vaginal Epithelial Cells Facilitates the Prediction of Ovulation in the Giant Panda. *Theriogenology.* 57:1855-1864.

Durrant, B.S., Olson, M.A., Amodeo, D., Anderson, A., Russ, K.D., Campos-Morales. R., Gual-Sill, F, and Ramos-Garza, J. 2003. Vaginal Cytology and Vulvar Swelling as Indicators of Impending Estrus and Ovulation in Giant Panda (*Ailuropoda melanoleuca*). *Zoo Biology*. 22:313-321.

El-Deek, A.A. and Brikaa, A.M. 2009. Nutritional and biological evaluation of marine seaweed as a feedstuff and as a pellet binder in poultry diet. *International Journal Science*. 8(9): 875-881.

El., Gamal, A.A. 2010. Biological importance of marine algae. *Saudi Pharmaceutical Journal.* 18: 1-25.

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Ettinger, A.S., Lamadrid-Figueroa, H., Téllez-Rojo, M.M., Mercado-García A, Peterson KE, Schwartz J, Hu H. 2009. Effect of calcium supplementation on blood lead levels in pregnancy: A randomized placebo-controlled trial. Environ. Health Persp.

Evitadewi, D.W. 2001. Beternak Burung Puyuh dan Pemeliharaan Secara Modern. Semarang : Aneka Ilmu. 117:26–31. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2627861/

Fadilah, S., Alimuddin., Pong-Masak, P.R., Santoso, J. and Parenrengi, A. 2016. Growth, Morphology and Growth Related Hormone Level in Kappaphycus alvarezii Produced by Mass Selection in Gorontalo Waters, Indonesia, *HAYATI Journal of Biosciences*. Vol. 23, Issue 1,Pages 29-34. https://doi.org/10.1016/j.hjb.2015.09.004.

Feng, H., Wang, L., Zhang, G., Zhang, Z and Guo, W. 2020. Oxidative stress activated by Keap-1/Nrf2 signaling pathway in pathogenesis of preeclampsia. *International Journal of Clinical and Experimental Pathology*. 1;13(3):382-392.

Ferreira, Y.A.M., Jamar, G., Estadella, D. and Pisani, L.P. 2023. Role of carotenoids in adipose tissue through the AMPK-mediated pathway. *Food and Function*. 24;14(8):3454-3462. doi: 10.1039/d2fo03781e.

Fernandez, M.L. and Murillo, A.G. 2022. Is There a Correlation between Dietary and Blood Cholesterol? Evidence from Epidemiological Data and Clinical Interventions. *Nutrients*. 14(10), 2168.

Finn, R. N. 2007. Vertebrate yolk complexes and the functional implications of phosvitins and lipovitellins. *Biology of Reproduction*. 76(6), 926–935.

Fisher, A.L. and Nemeth, E. 2017. Iron homeostasis during pregnancy. American *Journal of Clinical Nutrition*. 106, 1567S-1574S. https://doi.org/10.3945/ajcn.117.155812

Fleurence, J. 1999 Seaweed proteins: biochemical, nutritional aspects and potential uses. *Trends Food Sci Technol*. 10 25-8

Formanowicz, D., Sackmann, A., Formanowicz, P. and Błażewicz, J. 2007. Petri Net Based Model of the Body Iron Homeostasis. *Journal of Biomedical Informatics*. Vol 40(5):476–485.

Fu, Z., Kato., H., Sugaharta, K. and Kubo, T. 2000. Retinoic Acid Accelerates the Development of Reproductive Organs and Egg Production in Japanese Quail (*Coturnix japonica*)," *Biology of Reproduction* 63(6), 1795-1800

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Ganz, T. 2013. Systemic iron homeostasis. *Physiological Reviews*. 93(4):1721-41. doi: 10.1152/physrev.00008.2013

Ganz, T. and Nemeth, E. Iron metabolism: interactions with normal and disordered erythropoiesis. *Cold Spring Harbor Perspectives in Medicine.* 2012;2(5):a011668. doi:10.1101/cshperspect.a011668

Garratt, M., Vasilaki, A., Stockley, P., McArdle, F., Jackson, M. dan Hurst, J.L. 2011. Is oxidative stress a physiological cost of reproduction? An experimental test in house mice. *Proceedings of the Royal Society B: Biological Sciences.* 278(1708), 1098–1106.

Ghasemi, A., Jeddi, S. and Kashfi K. 2021. The laboratory rat: Age and body weight matter. *EXCLI Journal*. 23;20:1431-1445. doi: 10.17179/excli2021-4072.

Ghazvianian, K., Irani, M., Jamshidi, R., Aghsaghali, A.M., Siadati, A. and Vaighan, A.J. 2011. The effect of energy to protein ratio on pruction performance and characteristics of Japanese Quail eggs. *Annals of biological research* 2 (2): 122-128.

Grases-Pintó, B., Abril-Gil, M., Torres-Castro, P., Castell, M., Rodríguez-Lagunas, M.J., Pérez-Cano, F.J. and Franch, A. 2021. Rat Milk and Plasma Immunological Profile throughout Lactation. *Nutrients*. 13(4), 1257.

Grosvenor, M.B. and Smolin, L.A. 2002. Nutrition: From science to life, 1st ed. Harcourt College Publishers. Philadelpia. p. 193. https://trove.nla.gov.au/work/11471998

Gulec, S., Anderson, G.J. and Collins, J.F. 2014. Mechanistic and regulatory aspects of intestinal iron absorption. *American Journal of Physiology-Gastrointestinal and Liver Physiology*. 307(4):G397-409. doi:10.1152/ajpgi.00348.2013

Guyton, A.C. and Hall, J.E. 2006. Textbook of medical physiology. 11 th ed. Elsevier Saunders. Philadelphia. p. 283–285. https://www.elsevier.com/books/textbook-ofmedical-physiology/hall/978-0-7216-0240-0

Guyton, A.C. and Hall, J.E. 2006. Metabolisme lipid. In: Guyton AC, Hall JE, editors. Buku Ajar Fisiologi Kedokteran (Edisi 11). Jakarta: EGC, p.882-94.

Guyton, A.C. and Hall. J.E. 2006. *Blood Cells, Immunity, and Blood Clotting* in *Textbook Of Medical Physiology* 11th Ed. Philadelphia. Elsevier. pp 417-429.

PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L.
Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus
norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Guyton, A.C. and Hall. J.E. 2010. *Fisiologi Kedokteran*, edisi ke 12. [Penerjemah: Widjajakusuma M.H dan Tanzil A]. Jakarta: Saunders Elseveie. Singapore. pp 310:693-6.

Guiry, M.D. and Guiry, G.M. 2023. AlgaeBase. World-wide electronic publication, National University of Ireland, Galway (taxonomic information republished from AlgaeBase with permission of M.D. Guiry). *Eucheuma denticulatum* (N.L.Burman) Collins & Hervey, 1917. Accessed through: World Register of Marine Species at: https://www.marinespecies.org/aphia.php?p=taxdetails&id=213998 on 2023-02-12

Guan, Y., Chu, Q., Fu, L. and Ye, J. 2005. Determination of antioxidants in cosmetics by micellar electrokinetic capillary chromatography with electrochemical detection. *Journal of Chromatography.* A 1074, 201–204. https://doi.org/10.1016/j.chroma.2005.03.063

Gupta, S., Abu-Ghannam, N. 2011. Recent developments in the application of seaweeds or seaweed extracts as a means for enhancing the safety and quality attributes of foods. *Innovative Food Science and Emerging Technologies*. 12, 600–609. https://doi.org/10.1016/j.ifset.2011.07.004

Gwozdzinski, K., Pieniazek, A. and Gwozdzinski, L. 2021. Reactive Oxygen Species and Their Involvement in Red Blood Cell Damage in Chronic Kidney Disease. Oxidative Medicine and Cellular Longevity. 1–19.

Hafez, E.S.E. and Hafez, B. 2000. *Reproduction in Farm Animals* 7th Lippincott Williams and Wilkins. pp 172-181.

Hafsa, S.H.A., Zeweil, H.S., Zahran, S.M., Ahmed, M.H., Dosoky, W. and Rwif, N.A. 2019. Effect Of Dietary Supplementation With Green And Brown Seaweeds On Laying Performance, Egg Quality, Blood Lipid Profile And Antioxidant Capacity In Japanese Quail. *Egyptian Poultry Science.* Vol. (39) (I): (41-59).

Halliwell, B., 1999. Food-derived antioxidants. Evaluating their importance in food and in vivo. *Food Science and Agricultural Chemistry.*

Hashim, M.A. and Chu, K.H. 2004. Biosorption of Cadmium by Brown, Green, and Red Seaweeds. *Chemical Engineering Journal.* 97:249–255.

Hatsu, I. E., MCDougald, D.M. and Anderson, A.K. 2008. Effect of infant feeding on maternal body composition. International breastfeeding journal, 3, 1.

Hardinsyah, Anwar, K., Martini, R., Syah, M.N.H., Ilmi, I.M.B., Artanti, G.D., Prasetyo, T.J., Ariyanti, A.I., Khoirunnisa, F., Putri, I. 2021. Menu Bergizi

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Menggunakan Pangan Lokal Bagi Ibu Hamil. Perhimpunan Pakar Pangan dan Gizi (PERGIZI PANGAN) Indonesia. Hal 8-15

Hardjasasmita. P. 2006. *Ikhtisar Biokimia Dasar*. Jakarta: Balai Penerbit FKUI.

Harper. 2003. *Defeciency vitamin C*. WHO. France. pp 23-24.

Hedrich, H.J. 2006. *Taxonomy and Stocks and Strains. In: The Laboratory Rat* (Suckow, M.A., Weisbroth, S.H., and Franklin, C.L. eds). Elsevier Academic Press. pp 71–92

Hentze, M.W., Muckenthaler, M.U. and Andrews, N.C. 2017. Balancing acts: molecular control of mammalian iron metabolism. *Cell*. 117(3):285-97. doi:10.1016/S0092-8674(04)00343-5

Hentze, M.W., Muckenthaler, M.U., Galy, B. and Camaschella, C. 2010. Two to tango: Regulation of mammalian iron metabolism. *Cell*, 142(1), 24–38. https://doi.org/10.1016/j.cell.2010.06.028

Hesterman, H., Jones, S.M. and Schwarzenberger, F. 2008. Reproductive Endocrinology of the Largest Dasyurids: Characterization of Ovarian Cycles by Plasma and Fecal Steroid Monitoring. Part II. The spotted-tailed quoll (Dasyurus maculatus). *General and Comparative Endocrinology*. [Abstract]

Hill, P.D., Aldag. J.C., Demirtas, H., Naeem, V., Parker, N.P., Zinaman, M.J. and Chatterton, R.T. 2009. Association of serum prolactin and oxytocin with milk production in mothers of preterm and term infants. *Biological research for nursing*, 10, 340- 349.

Matozzo, V., Gagné, F., Marin, M.G., Ricciardi, F. and Blaise, C. 2008. Vitellogenin as a biomarker of exposure to estrogenic compounds in aquatic invertebrates: a review. *Environment International*. (4):531-45. doi: 10.1016/j.envint.2007.09.008.

Hoffbrand, A.V. dan Moss. P.A.H. 2013. *Kapita Selekta Hematologi*. 6th ed. Jakarta. EGC. hal 2-43; 100-135

Hoffbrand, A.V.,J.E. Pettit., dan P.A.H. Moss. 2005. Kapita Selekta Haemotologi. Edisi 4. EGC Penerbit Buku Kedokteran. Jakarta. hlm. 1-3.

Hofmeyr, G.J., Lawrie, T.A., Atallah, Á.N., Duley, L. and Torloni, M.R. 2014. Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems. *Cochrane Database of Systematic Reviews*. doi: 10.1002/14651858.CD001059.pub4.

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Holdt, S. and Kraan. 2011. Bioactive compounds in seaweed: Functional food applications and legislation. *Journal of Applied Phycology*. pp. 543-597

Hubrecht, R. and Kirkwood. J. 2010. *The UFAW Handbook of The Care and Management of Laboratory and Other Research Animals*. Edisi ke-8. Universities Federation for Animal Welfare. pp 311-324

Hussein, E. 2013. Biochemical and Histopathological Studies on the Liver of Rats Administrated with Different Concentrations of Aqueous Extract of Glycyrrhiza glabrous. *Global Veterinary*. 10(5), 491–495.

Iannotti, L.L., Lutter., C.K., Stewart., C.P., Gallegos Riofrío, C.A., Malo, C., Reinhart, G., Palacios, A., Karp, C., Chapnick, M., Cox, K. dan Waters, W.F. 2017. Eggs in Early Complementary Feeding and Child Growth: A Randomized Controlled Trial. *Pediatrics.*140(1), 2016–3459.

İlknur, A., Çankırılıgil, E.C., Türker, G. and Sever, O. 2021. Assessment of light intensity and salinity regimes on the element levels of brown macroalgae, Treptacantha barbata: Application of response surface methodology (RSM). *Food Science and Technology,* 41(4): 944-952.

Imdad, A., Jabeen, A. and Bhutta, Z.A. 2011. Role of calcium supplementation during pregnancy in reducing risk of developing gestational hypertensive disorders: A metaanalysis of studies from developing countries. BMC Public Health. 1:1–13. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3231891/

Indrayani, D., Shahib, N. dan Husin, F. 2018. Hubungan Status Gizi Dengan Kadar Prolaktin Serum Ibu Menyusui. *Jurnal Asuhan Ibu dan AnaK.* 3(1): 45-50.

Ivarsson, E., Wall, H., Boyner, M., Cervin, G., Pavia, H. and Wattrang, E. 2023. Effects of algal supplementation in feed to broiler breeders on transfer of nutrients and antibodies to chicks and quality of hatchlings. *Animal.* 17(12), 101020.

Johnson, A.L. 2000. Reproduction in Female. In GC Whittow. Sturkie's Avian Physiology. Ed ke-5. New York: Academic Press.

Johnson, M. 2012. Laboratory Mice and Rats. Mater Methods 2:113. http://www.labome.com/method/Laborat. ory-Mice-and-Rats.html. Diakses 09 Agustus 2016.

Johnson, A.L. 2015. Ovarian follicle selection and granulosa cell differentiation. *Poultry Science.* 94(4):781-5. doi: 10.3382/ps/peu008.

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Jouanne, M., Oddoux, S., Noël. A. and Voisin-Chiret. A.S. 2021. Nutrient Requirements during Pregnancy and Lactation. *Nutrients*, *13* (2). https://doi.org/10.3390/nu13020692

Jucá, M.M., Cysne., Filho, F.M.S., Almeida, J.C., Mesquita, D.D.S., Barriga, J.R.D.M., Dias, K.C.F. and Vasconcelos S, M.M. 2020. Flavonoids: biological activities and therapeutic potential. *Natural Product Research*. 34 (5), pp. 692-705

Jumadina, L., Maheshwarib, H., Ulupic, N. and Satyaningtijasb, A.S. 2022. Physiological and Productivity Performances of Japanese Quails Supplemented with Cassava Leaf. *Tropical Animal Science Journal*, 45(4):460-466.

Kaspers, B. 2016. An egg a day – the physiology of egg formation. *LOHMANN Information*. Vol. 50(2)

Kaselung, P.S., Montong, M.E.K., Sarayar, C.L.K. and Saerang, J.L.P. 2014. Addition of turmeric rhizome (Curcuma domestica val), ginger rhizome (Curcuma xanthorriza roxb) and white ginger rhizome (Curcuma zedoaria rosc) in commercial rations on the performance of quail (Coturnix japonica). *Jurnal Zootek.* Vol. 34(1): 114-123

Kendal, K. 2014. Synopsis Organ System Endocrinology. Tangerang : Kharisma Publisihing Group

Keyimu, X.G. and Abuduli, M. 2019. Seaweed Composition and Potential Uses. *International Journal of ChemTech Research*. 12(1): 105-111.

Kanungo, S., Wells, K., Tribett, T. dan El-Gharbawy, A. 2018. Metabolisme glikogen dan gangguan penyimpanan glikogen. *Annals of Translational Medicine*. 6(24), 474.

Khan, T.A. and Zafar, F. 2005. Haematological Study in Response to Varying Doses of Estrogen in Broiler Chicken. *International Journal of Poultry Science.* Vol 4(10):748-751.

Khan, M.Z., Zugaza., J.L. and Aleman, A.I. 2025. The signaling landscape of insulin-like growth factor 1. *Journal of Biological Chemistry*. 301(1):108047. doi: 10.1016/j.jbc.2024.108047

Khan, R.U., Khan, A., Naz, S., Ullah, Q., Puvača, N., Laudadio, V., Mazzei, D., Seidavi, A., Ayasan, T. and Tufarelli, V. 2023. Pros and Cons of Dietary Vitamin A and Its Precursors in Poultry Health and Production: A Comprehensive Review. *Antioxidants*. 12, 1131. https://doi.org/10.3390/antiox12051131

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Khoirunnisa, S.M. 2020. Perbandingan Kadar Zat Besi (Fe) Pada Hati Ayam Broiler Dan Hati Ayam Kampung Yang Dijual Di Pasar Smep Secara Spektrofotometri Serapan Atom. *Jurnal Analis Farmasi*. Volume 5, No. 1. Hal 64 – 63.

Kim, J-C., Yun, H-I., Lim, K-H., Suh, J.E. and Chung M-K. 2000. Haematological values during normal pregnancy in Sprague-Dawley rats. *Comparative haematology international.* 10:74–9. https://doi.org/10.1007/s005800070011.

Krinke, G.J. 2000. *The Laboratory Rat. The Handbook of Experimental Animals.* Academic Press. pp 3-56.

Kuhn, V., Diederich, L., Keller, T.C.S., Kramer., C.M., Lückstädt, W. and Panknin, C. 2017. Red blood cell function and dysfunction: redox regulation, nitric oxide metabolism, anemia. *Antioxidants & Redox Signaling*. 26(13), 718–742.

Kulshreshtha,G., Rathgeber, B., Stratton, G., Thomas, N., Evans, F., Critchley, A,. Hafting, J. and Prithiviraj, B. 2014. Feed supplementation with red seaweeds, *Chondrus crispus* and *Sarcodiotheca gaudichaudii*, affects performance, egg quality, and gut microbiota of layer hens. *Poultry Science.* 93(12). pp 2991-3001

Kusumawati, D. 2004. *Bersahabat Dengan Hewan Coba.* edisi pertama. Universitas Gajah Mada. Yogyakarta. hal 88-91.

Kusumorini, N., dan Satyaningtijas, A.S. 2009. Pengaruh Pemberian Somatotropin Pada Saat Kebuntingan Terhadap Pertumbuhan Anak Tikus. *Majalah ilmu kehewanan Indonesia.*Vol 1 (1) 21-28

Lager, K. dan Jordan, E. Profil metabolik sapi perah transisi modern. Konferensi Nutrisi Ruminansia Mid-South, 2012, hlm. 9–16.

Lawrence, R.A. and Lawrence, R.M. 2011. Breastfeeding: a guide for the medical profession, 7th edition. Philadelphia, PA: Saunders Elsevier.

Lee, J,K,. Ha, J-H. and Collins, J.F. 2021. Dietary iron intake in excess of requirements impairs intestinal copper absorption in Sprague Dawley rat Dams, causing copper deficiency in suckling pups. *Biomed.* 9:338. https://doi.org/10.3390/biomedicines9040338.

Antoine, L., Souchet, S., Gelé, M., Provost, F.L. and Boutinaud, M. 2021. Effect of feed restriction on dairy cow milk production: a review. *Journal of Animal Science*. Volume 99, Issue 7, skab130.

PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L.
Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus
norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Levy, M.N., Koeppen, B.M. and Stanton, B.A. 2006. *Digestion and Absorption.* Dalam: Levy, M.N,. Koeppen, B.M, penyunting. Stanton BA. Berne and Levy Principles of Physiology. Edisi ke-4. Philadelphia: Mosby; hal 488-9.

Listiyowati, E. dan Roospitasari, K. 2009. Beternak Puyuh Secara Komersial. Penebar Swadaya. Jakarta.

Li, H., Wang, T., Xu, C., Wang, D., Ren, J., Li, Y., Tian, Y., Wang, Y., Jiao, Y. and Kang, X. 2015. Transcriptome profile of liver at different physiological stages reveals potential mode for lipid metabolism in laying hens. *BMC Genomics. 16*, 763.

Li, H., Li, Z. and Liu, X. 2017. An Overall View of the Regulation of Hepatic Lipid Metabolism in Chicken Revealed by New-Generation. *In Poultry Science*; Intech: London, UK. p. 133.

Liu, L., Chen, Y., Chen, B., Xu, M., Liu, S., Su, Y., Qiao, K. and Liu, Z. 2023. Advances in Research on Marine-Derived Lipid-Lowering Active Substances and Their Molecular Mechanisms. *Nutrients*, *15*(24), 5118.

Li, Y., Zhao, P., Jiang, B., Liu, K., Zhang, L., Wang, H., Tian, Y., Li, K. and Liu, G. 2023. Modulation of the vitamin D/vitamin D receptor system in osteoporosis pathogenesis: insights and therapeutic approaches. *Journal of Orthopaedic Surgery and Research*. 13;18(1):860. doi: 10.1186/s13018-023-04320-4.

Li, W., Wu, Y., Liu, X., Yan C., Liu, D., Pan, Y., Yang, G., Yin, F., Weng, Z., Zhao, D., Chen, Z. and Cai, B., 2013. Antioxidant properties of cis-ZZ'-3.7a', 7a.3a'- dyhidroxy-ligustilide on human umbilical vein endothelial cells in vitro. Molecule, ISSN 1420-3049.

Lima, H.J.D. and Souza, L.A.Z. 2018. Vitamin A in the diet of laying hens: enrichment of table eggs to prevent nutritional deficiencies in humans. *World's Poultry Science Journal*. 74(4), 619–626.

Linder, M.C. 2010. *Nutritional Biochemistry and Metabolis*m, (Terj.):Parakkasi, Biokimia Nutrisi dan Metabolisme. UI Press. Jakarta. hal 119-225.

Lokapirnasari, W.P. 2017. Nutrisi dan Manajemen Pakan Burung Puyuh. Cet.1– Surabaya: Airlangga University Press. 103 hlm.: 23

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Lumbessy, S.Y., Setyowati, D.N.A., Mukhlis, A., Lestari, D.P. and Azhar, F. 2020. Nutritional Composition and Photosynthetic Pigment Content of Three Cultivated Red Algae Species (*Rhodophyta sp*.). *Journal of Marine Research*, *9*(4), 431-438.

Mahmood, A., Omar, M.N. and Ngah, N. 2012. Galactagogue effects of Musa x paradisiacal flower extract on lactating rats. *Asian Pacific Journal of Tropical Medicine.* 882-886.

Makkar, H.P., Tran, G., Heuzé, V., Giger-Reverdin, S., Lessire, M., Lebas, F. and Ankers, P. 2016. Seaweeds for livestock diets: A review. *Animal Feed Science and Technology*, *212*, 1-17.

Mangu, S.R., Patel, K., Sukhdeo, S.V., Savitha, M.R. and Sharan, K. 2022. Maternal high-cholesterol diet negatively programs offspring bone development and downregulates hedgehog signaling in osteoblasts. *Journal of Biological Chemistry*. 298:102324. doi: 10.1016/j.jbc.2022.102324.

Marks, D.B., Marks, A.D. dan Smith, C.M. 2000. *Biokimia Kedokteran Dasar* : Sebuah Pendekatan Klinis, Edisi 1, EGC. Jakarta. hal 478-545.

Marangoni, F., Cetin, I., Verduci, E., Canzone, G., Giovannini, M., Scollo, P. and Corsello, G. 2016. Maternal diet and nutrient requirements in pregnancy and breastfeeding. An Italian Consensus Document. *Nutrients*. 8(10):629. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5084016/

Mauget, R., Mauget, C., Dubost, G. and Charron. F. 2007. Non-invasive Assessment of Reprodukctive Status in Chinese Water deer (hydropotes inermis): Correlation with Sexual Behaviour. *Mammalian Biology.* Vol 72(1):14-26.

Matanjun, P., Mohamed, S., Mustapha, N.M. and Muhammad, K. 2009. Nutrient content of tropical edible seaweeds *Eucheuma cottonii,* Caulerpa lentillifera, and Sargassum polycystum. *Journal of Applied Phycology.* 21: 75−80

Maryunani, A. 2012. Inisiasi Menyusui Dini, Asi Eksklusif dan Manajemen Laktasi. Jakarta: Trans info media.

Melendez-Martnez, A.J. 2019. An overview of carotenoids, apocarotenoids, and vitamin A in agro-food, nutrition, health, and disease. *Molecular Nutrition & Food Research*. 63(15), e1801045.

PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L.
Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus
norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Mennella, J.A. and Pepino, M.Y. 2010. Breastfeeding and Prolactin Levels in Lactating Women With a Family History of Alcoholism. *Pediatrics.* 125(5): e1162–e1170.

Meyer, D.J. and Harvey, J.H. 2004. *Veterinary Laboratory Medicine* : Interpretation and Diagnosis 3rd Ed. Saunders.

Millar, C.L., Duclos, Q. and Blesso, C.N. 2017. Effects of Dietary Flavonoids on Reverse Cholesterol Transport, HDL Metabolism, and HDL Function. Adv Nutr. 15;8(2):226-239. doi: 10.3945/an.116.014050.

Mishra, B., Sah, N. and Wasti, S. 2020. Genetic and Hormonal Regulation of Egg Formation in the Oviduct of Laying Hens. *IntechOpen*. doi: 10.5772/intechopen.85011

Mohiti-Asli, M. and Zaghari M. 2010. Does dietary vitamin E or C decrease egg yolk cholesterol?. *Biological Trace Element Research*.138:60–8. doi: 10.1007/s12011-010-8612-6. https://doi.org/10.1007/s12011-010-8612-6.

Muckenthaler, M. U., Rivella, S., Hentze, M. W., and Galy, B. 2017. A red carpet for iron metabolism. *Cell.* 168(3), 344–361. https://doi.org/10.1016/j.cell.2016.12.034

Munker. R., Hiller, E., Glass, J. and Paquette. R.E. 2007. *Modern Hematology : Biology and Clinical Managemant*. 2 nd ed. Humana Press. New Jersey. p 463

Mushirobira, Y., Nishimiya, O., Nagata, J., Todo, T., Hara, A., Reading, B.J. and Hiramatsu, N. 2018. Molecular cloning of vitellogenin gene promoters and in vitro and in vivo transcription profiles following estradiol-17β administration in the cutthroat trout. *General and Comparative Endocrinology.* 1;267:157-166. doi: 10.1016/j.ygcen.2018.06.017.

Mousa, A., Naqash, A. and Lim, S. 2019. Macrnutrient and Micrnutrient Intake during Pregnancy: An Overview f Recent Evidence

Murray, R.K., Granner, D.K. dan Rodwell. V.W. 2009. *Biokimia Harper* (27 ed.). Buku Kedokteran. Jakarta. EGC.

Naeem, M., Rahim, MA, Nisa, MU, Khalid, K., Ahmad, N. dan Khalid, N. dan Awuchi, CG 2023. Digestibility, intake, and growth performance of egg protein replaced with vegetable protein in weaning food. *Cogent Food and Agriculture*. 9(1), 2258800.

PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L.
Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus
norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Nalley, W.M.M., Handarini, R., Rizal, M., Arifiantini, R.I., Yusuf, T.L. dan Purwantara, B. 2011. Penentuan Siklus Estrus Berdasarkan Gambaran Sitologi Vagina dan Profil Hormon pada Rusa Timor. *Jurnal Veteriner.* Vol 12(2):98-106

Nesheim, M.C., Austic, R.E. and Card, L.E. 1979. Poultry Production. 2 Ed. Lea & Febiger. Philadelphia.

Nishio, S., Okumura, H. and Matsuda, T. 2018. Egg-Coat and Zona Pellucida Proteins of Chicken as a Typical Species of Aves. *Current Topics in Developmental Biology*. 130:307-329. doi: 10.1016/bs.ctdb.2018.02.008.

Nixon, T.M. 2008. *Sukses Beternak Puyuh*. Penerbit Agromedia Nusantara. pp. 105-107.

Noor, S.M., Sutiastuti, Wahyuwardani, S., Bakrie, B., Wasito., Praharani, L., Nurhayati, I.S. dan Widiyanti, P.M. 2022. Penanganan Rodensia dalam penelitian sesuai kaidah kesejahteraan hewan. Jakarta: IAARD Press

Nugroho. dan Mayun. K.T. 1981. Beternak Burung Puyuh. Eka Offsets, Semaran.

Nur, S., Aswad, M., Yulianty, R., Burhan, A., Johanes, W., Patabang, D., Fadri, A. dan Nursamsiar. 2022. Antioxidant Activity Profile of Cherry Fruit Extract (Muntingia calabura L.) Using TAC and CUPRAC Methods. *Journal of Pharmaceutical Science and Clinical Research*. 01, 79-88

Octavia, L. and Harlan, J. 2021. Supplementation and fortification program in eradicating micronutrient deficiencies in Indonesia. *Jurnal Kedokteran dan Kesehatan Indonesia*. 12(3):267-275.

O'Sullivan, A.M.,Y.C. O'Callaghan, M.N. O'Grady, B. Queguineur. and D. Hanniffy et al., 2011. In vitroand cellular antioxidant activities of seaweed extracts prepared from five brown seaweeds harvested in spring from the west coast of Ireland. *Food Chemistry*. 126: 1064-1070.

O'Rourke, S.A., Shanley, L.C. and Dunne, A. 2024. The Nrf2-HO-1 system and inflammaging. *Frontiers Immunology*. 24;15:1457010. doi: 10.3389/fimmu.2024.1457010.

Otten, J.J., Pitzi, Hellwig, J. and Meyers, L.D. 2006. Editors. Dietary reference intakes. The essential guide to nutrient requirements. Washington, DC: National Academies Press;

Pastuszewska, B., Taciak, M., Ochtabińska, A., Tuśnio, A., Misztal, T., Romanowicz, K. and Morawski, A. 2008 Nutritional value and physiological effects of a soy-free diet fed to rats during growth and

PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L.
Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus
norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

reproduction. The *Journal of Animal Physiology and Animal Nutrition*. (Berl). 92(1), 63–74.

Parrela, J.P.S.S., Borkenhagen, I.R., Salmeron, S.R.F., Lima, T.A.L., Miranda, G.D.S, Costermani, H.O., Ricken, C.L.R.D.S., Alves, E.V., Gomes, R.M. and Oliveira, J.C. 2022. Intrauterine malnutrition disrupts leptin and ghrelin milk hormones, programming rats. *Journal of Endocrinological*. 7;255(1):11-23. doi: 10.1530/JOE-21-0427

Parhofer, K.G. and Barrett, P.H.R. 2006. Thematic review series: Patient-oriented research. What we have learned about VLDL and LDL metabolism from human kinetics studies. *The Journal of Lipid Research*. 47:1620-3

Peppel, J.V.D. and Leeuwen, J.P.V. 2014. Vitamin D and gene networks in human osteoblasts. *Frontiers in physiology*. 9;5:137. doi: 10.3389/fphys.2014.00137.

Prahasta, A. dan Hasnawi M. 2009. Agribisnis Burung Puyuh. Bandung : Pustaka Grafika.

Poedjiadi, A. dan Supriyanti. T. 2006. *Dasar-dasar Biokimia*. UI-Pres. hal 276-296.

Powe, C.E, Allen, M., Puopolo, K.M, Merewood, A., Worden, S., Johnson, J.C, Fleischman, A. and Welt, CK 2010. Recombinant human prolactin for the treatment of lactation insufficiency. *Endokrinol Klinis*. (Oxf). 73(5), 645–653.

Podungge, A., Damongilala, L.J. Mewengkang, H.W. 2017. Kandungan antioksidan pada rumput laut *Eucheuma spinosum* yang diekstrak dengan metanol dan etanol. *Media Teknologi Hasil Perikanan*. 6(1), 1-5.

Ponka, P. 1997. Tissue-specific regulation of iron metabolism and heme synthesis: distinct control mechanisms in erythroid cells. *Blood*. 89(1):1-25. doi:10.1182/blood.V89.1.1.1

Putra, S.H.J., Saraswati, T.R. dan Isdadiyanto, S. 2015. Profil Lipid dan Hierarki Folikel Puyuh Jepang *(Coturnix japonica* L.) setelah Pemberian Suplemen Serbuk Kunyit (*Curcuma longa* L.). Tesis. Program Studi Biologi. UNDIP

Purba, S.L, Saraswati, R.T. and Isdadiyanto, S. 2018**.** The effect of organic quail egg supplementation on the blood lipid profile of white mice (*Rattus Norvegicus* L.) during the lactation period. *Journal of Physics: Conference Series.* hlm. 1025.

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Ramadan, N.A., Amal, S., Omar, A.S., Bahakaim, A.S.A., Sahar, M.H. and Osman. 2010. Effect of Using Different Levels of Iron with Zinc and Copper in Layer's Diet on Egg Iron Enrichment. *International Journal of Poultry Science*. 9 (9): 842-850

Rahardja, S. 2002. *Pengaruh Hormon Paratiroid, Kalsitonin, dan 1,25 Dihidrokokalsiferol pada resorbsi Tulang.* Dalam Majalah Ilmiah Kedokteran Gigi. Edisi Foril VII. Jakarta. hal 17-20.

Rascón-Cruz, Q., Siqueiros-Cendón, T. S., Siañez-Estrada, L. I., Villaseñor-Rivera, C. M., Ángel-Lerma, L. E., Olivas-Espino, J. A., León-Flores, D. B., Espinoza-Sánchez, E. A., Arévalo-Gallegos, S., & Iglesias-Figueroa, B. F. (2025). Antioxidant Potential of Lactoferrin and Its Protective Effect on Health: An Overview. *International Journal of Molecular Sciences*, *26*(1), 125.

Richards, M. P. and Steele, N. C. 1987. Trace mineral metabolism in the avian embryo. *Poultry Science.* 66(1), 152–164.

Riordan, J. 2005. Anatomy and physiology of lactation. Breastfeeding and human lactation, 67-95.

Rifas, L. 2002. *Cell an Molecular Biology Of The Osteoblast*. Department of Internal Medicine [Abstracts]. (http://www.Yahoo.com/research.medicine.wustl.adu).

Rismayanti, N.L.P.M. and Husni, A. 2021. Antioxidant activity of methanolic extract of *Eucheuma spinosum* extracted using a microwave. *IOP Conf. Series: Earth and Environmental Science*. 763; 012028

Rodrigo, R.A.T. 2009. Oxidative Stress and Antioxidant: Their Role in Human Disease. Nova Science Publisher, New York.

Rosmalawati, N. 2008. Pengaruh Penggunaan Tepung Daun Sembung (*Blumea* balsamifera) dalam Ransum Terhadap Profil Darah Ayam Broiler Periode Finisher. IPB (Bogor Agricultural University).

Sáez, T., Pageé, A., Kirschenman, R., Quon, A., Spaans, F. and Davidge, S.T. 2023. A high cholesterol diet during late pregnancy impairs long-term maternal vascular function in mice. *Arteriosclerosis, Thrombosis, and Vascular Biology*. 43:120–32. doi: 10.1161/ATVBAHA.122.318421.

Safitri, A., Srihardyastutie, A. Roosdiana, A. and Sutrisno. S. 2018. Antibacterial activity and phytocemical analysis of edible seaweed *Eucheuma spinosum* against Stapilococcus aureus. *Journal of Pure and Applied Chemistry Research.* 7: 308-315.

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Salmuth, V.V., Brennan, E., Kerac, M. dan McGrath, M. 2021. Frison S, Lelijveld N. Intervensi yang berfokus pada ibu untuk meningkatkan pertumbuhan dan status gizi bayi di negara berpenghasilan rendah-menengah: tinjauan sistematis. PLoS One. 16(8), e0256188.

Samaraweera, H., Zhang, W.G., Lee, E.J and Ahn, D.U. 2011. Egg yolk phosvitin and functional phosphopeptides--review. J Food Sci. 2011 Sep;76(7):R143-50. doi: 10.1111/j.1750-3841.2011.02291.x.

Saraswati, T.R., Tana, S. dan Isdadiyanto, S. 2018. Pakan Organik dan Metabolisme pada Puyuh. Hal 135-142

Saraswati, T.R., Wasmen, M., W., Damiana, R.E. and Nastiti, K. 2013a. Increased Egg Production of Japanese Quail (Cortunix japonica) by Improving Liver Function Through Turmeric Powder Supplementation. *International Journal of Poultry Science*. 12 (10): 601-614, 2013.

Sarlak, S., Tabeidian, S.A., Toghyani, M., Shahraki, A.D.F., Goli, M and Habibian, M. 2025. Organic iron and iodine in laying hen diet: Performance, egg quality, thyroid hormones, antioxidant status, serum and yolk lipids, and egg iron and iodine contents. *Journal of Trace Elements and Minerals.* 11, 100211. https://doi.org/10.1016/j.jtemin.2025.100211.

Schalm, O.W., Jain, N.C. and Carroll. E.J. 2010. *Veterinary Hematology* 6th Edition. Iowa: Wiley-Blackwell Publisher.

Schiaffino, S. and Mammucari, C. 2011. Regulation of skeletal muscle growth by the IGF1-Akt/PKB pathway: insights from genetic models. *Skeletal muscle.* 24;1(1):4. doi: 10.1186/2044-5040-1-4.

Schlenker, E.D., Minerals. and William. S.W. 2003. Essential of *Nutrition and Diet Therapy*. Edisi ke-8. Missouri: Mosbyh. pp. 176-81.

Schoch, C.L, Ciufo, S., Domrachev, M., Hotton, C.L, Kannan, S., Khovanskaya, R., Leipe, D., Mcveigh, R., O'Neill, K., Robbertse, B., Sharma, S., Soussov V., Sullivan, J.P., Sun, L, Turner, S and Karsch-Mizrachi, I. NCBI Taxonomy: a comprehensive update on curation, resources and tools. Database (Oxford). 2020 Jan 1;2020:baaa062. doi: 10.1093/database/baaa062.

Schultes, F.W. and Klug, G. 2009. World Bird Taxonomic List: Generic Galliformes. *Bulletin of zoological nomenclature*. 66(3):225-240

Scanes, C.G., Brant, G. and M.A. Ensminger. 2004. Poultry Science. 4 th Ed. New Jersey, USA: Pearson/Prentice Hall.

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Selman, C., McLaren, J.S., Himanka, M.J. dan Speakman, J.R. 2000. Effect of long-term cold exposure on antioxidant enzyme activities in a small mammal. *Free Radical Biology and Medicine*. 28(8), 1279–1285.

Seker, I., Kull, S. and Bayraktar, M. 2004. Effects of Parental Age and Hatching Egg Weight of Japanese Quails on Hatchability and Chick Weight Int. *Journal of Poultry Science. 3(4), 259-265.*

Sengupta, Pallav. 2013. The Laboratory Rat: Relating Its Age With Human's. *International Journal of Preventive Medicine.* 4 (6): 624-630.

Sharma, A., Behrens, SH., Chernoff, Y.O. and Bommarius, A.S. 2018. Modulation of the Formation of Aβ- and Sup35NM-Based Amyloids by Complex Interplay of Specific and Nonspecific Ion Effects. *Journal of Physical Chemistry B*. 122(19):4972-4981.

Sharmin, K.N., Taleb, M.A., Morshed, M.S., Kamaruddin, K.M. and Quader, M.F.B. 2016. Effects of chelated iron and zinc supplementation on egg quality of laying hens. *Bangladesh Journal of Veterinary and Animal Sciences.* Vol. 4, No. 1 & 2: 47-50

Shoback, D.M. and Sellmeyer, D.E. 2006. *Disorders of The Parathyroids and Calcium Metabolism*. In: McPhee SJ, Gannong WF. *Pathophysiology of Disease-! An Introduction to Clinical Medicine*. Edisi ke-5. San Francisco: Mc.Graw-Hill. pp 482-508.

Siangu, B.N., Sauda, S., John, M.K. and Njue, W.M. 2019. Antioxidant activity, total phenolic and flavonoid content of selected Kenyan medicinal plants, sea algae and medicinal wild mushrooms. *African Journal of Pure and Applied Chemistry*. Vol. 13(3), pp. 43-48

Sinha, S., Patro, N., Tiwari, P.K. and Patro, I.K. 2020. Maternal spirulina supplementation during pregnancy and lactation partially prevents oxidative stress, glial activation and neuronal damage in protein malnourished F1 progeny. *Neurochemistry International.* 141:104877. doi: 10.1016/j.neuint.2020.104877.

Singleton, G.R., Hinds, L.A., Krebs, C.J. and Spratt, D.M. 2003. Rats, Mice and People: Rodent Biology and Management. *Australian Centre for International Agricultural Research*. Canberra, Australia.

Shakoor, H., Khan, M.I., Sahar, A., Khan, M.K.I., Faiz, F. and Basheer, Ahmad, H. 2020. Development of omega-3 rich eggs through dietary flaxseed and bio-

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

evaluation in metabolic syndrome. *Food Sciences and Nutrition*. 8:2619–26.

Sherwood, L. 2013. *Human physiology: From Cells to Systems*. 8th ed. USA: Thomson Brooks/Cole.

Shoback, D.M. and Sellmeyer. D.E. 2006. *Disorders of The Parathyroids and Calcium Metabolism*. In: McPhee SJ, Gannong WF. *Pathophysiology of Disease-! An Introduction to Clinical Medicine*. Edisi ke-5. San Francisco: Mc.Graw-Hill. pp 482-508.

Siebel, A.L., Heywood, S.E., Kingwell, B.A. 2015. HDL and glucose metabolism: current evidence and therapeutic potential. *Front Pharmacol*. 6:258. doi: 10.3389/fphar.2015.00258

Siregar, Y.I. dan Adelina. 2009. Pengaruh Vitamin C Terhadap Peningkatan Hemoglobin Darah dan Kelulusanhidup Benih Ikan Kerapu Bebek (*Cromileptes altivelis*). *Jurnal Natur Indonesia.* Vol 12(1):78-79.

Sjahfirdi, L., Gita, P.K., Astuti, P. dan Maheshwari, H. 2013. Pemeriksaan Profil Hormon Progesteron Selama Siklus Estrus Tikus (*Rattus Norvegicus*) Betina Menggunakan Perangkat Inframerah. *Jurnal Kedokteran Hewan*. Vol 7(1):32-36.

Skrivan, M., Skrivanová, V. and Marounek, M. 2005. Effects of Dietary Zinc, Iron, and Copper in Layer Feed on Distribution of These Elements in Eggs, Liver, Excreta, Soil, and Herbage. Poultry Science 84:1570–1575

Słupczynska, M., Jamroz, D., Orda, J. and Wiliczkiewicz, A. 2014. Effect of various sources and levels of iodine, as well as the kind of diet, on the performance of young laying hens, iodine accumulation in eggs, egg characteristics, and morphotic and biochemical indices in blood. *Poultry Science*. 93(10), 2536–2547.

SNI. Standar Nasional Indonesia, 2023. Pusat Perakitan dan Modernisasi Peternakan dan Kesehatan Hewan. Kementerian Pertanian Indonesia. SNI 3905-2023/ SNI 3907-2023. https://peternakankeswan.brmp.pertanian.go.id/informasi-publik/standar-nasional-indonesia-sni

Sofiana, M.S.J., Aritonang, A.B., Safitri, I., Helena, S., Nurdiansyah, S.I. and Fadly, D. 2020. Proximate, Phytochemicals, Total Phenolic Content and Antioxidant Activity of Ethanolic Extract of *Eucheuma spinosum* Seaweed. *Systematic Reviews in Pharmacy*, *11*(8).

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Sumaiya, S., ,Nayak, S., Baghel, RP, Nayak, A., Malapure, C.D. and Kumar, R. 2016. Effect of dietary iodine on production of iodine enriched eggs. *Veterinary World.* 9(6), 55–558.

Suyecz, J.A. 2008. The Use of Calcium and Vitamin D in the Management of Osteoporosis. *Therapeutics and Clinical Risk Management.* Vol 4(4):827–36.

Sudarmono. 2003. Pedoman Pemeliharaan Ayam Ras Petelur. Yogyakarta: Kanisius

Sumiyoshi, T., Tanaka, T. And Kamamoe, H. 2014. Relationship Between The Appearances and Changes of Estrous Signal and The Estradiol 17â, Luteinizing Hormone Surge and Ovulation During The Periovulatory Period in Lactating Dairy Cow Kept in Tie Stalls. *Journal of Reproduction and Development.* Vol 60(2):106-114.

Suradi, R. 2010. Indonesia Menyusui, Jakarta, IDAI

Sundar, P.S., Chowdhury, C. and Kamarthi, S. 2023. Principles for Designing Green, Lean, and Smart Microfactories: Chicken as a Model. *IntechOpen*. doi: 10.5772/intechopen.109645

Straub, D.A. 2007. Calcium Supplementation in Clinical Practice: A Review of Forms, Doses, and Indications. *Nutrition and Clinical Practice.* Vol 22(3):286-96.

Syaifuddin. 2009. Fisiologi Tubuh Manusia. Edisi Kedua. Salemba Medika. Jakarta. hlm. 25-28

Tambayong, J. 2001. *Anatomi dan Fisiologi Untuk Keperawatan*. Penerbit Buku Kedokteran. Jakarta. EGC. hal 367-39.

Tangalayuk, R.R., Suarsana, I.N. dan Utama, I.H. 2015. Kadar Kalsium dan Fosfor pada Tulang Tikus Betina yang diberi Tepung Tempe Rendah Lemak. *Buletin Veteriner Udayana*. 7(1):59-65

Teerapornpuntakit, J., Dorkkam, N., Wongdee, K., Krishnamra, N. and Charoenphandhu, N. 2009. Endurance Swimming Stimulates Transepithelial Calcium Transport and Alters the Ekspression of Genes Related to Calcium Absorption in the Intestine of Rats. *American Journal of Physiology-Endocrinology and Metabolism.* 296:E775-E86.

Tirgar, P. 2012. Investigation into mechanism of action and pharmacological evaluation of various extracts of Triticum Aestivum (wheat) grass with special reference to its beneficial effects on iron-overload and blood disorders. RK University. Review Of Literature.

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Titaley, C.R., Dibley, M.J., Roberts, C.L., Hall, J. And Agho, K. 2010. Iron and folic acid supplements and reduced early neonatal deaths in Indonesia. *Bulletin of the World Health Organization*. 88(7):500-508.

Tsiligianni, T.H., Saratsi, A., Besenfelder, U., Anastasiadis, A., Vainas, E., Saratsis, P.H. and Brem, G. 2004. The Use of Cytological Examination of Vaginal Smear (CEVS) in the Selection of Rabbits for Superovulation. *Theriogenology*. 61:989-995.

Tolistiawaty, I. 2007. Perkembangan dan Pertumbuhan Plasenta Tikus (*Rattus norvegicus*) Pada Umur Kebuntingan 13, 17, dan 21 Hari Akibat Penyuntikan bST (bovine Somatotropin). Tesis. Institut Pertanian Bogor.

Toma, L., Sanda, G. M., Niculescu, L. S., Deleanu, M., Sima, A. V. and Stancu, C. S. 2020. Phenolic Compounds Exerting Lipid-Regulatory, Anti-Inflammatory and Epigenetic Effects as Complementary Treatments in Cardiovascular Diseases. *Biomolecules*, *10*(4), 641. https://doi.org/10.3390/biom10040641

Torghi, R.M., Sharifi, S.D., Torshizi, M.A. and Rouhanipour, H. 2025. Gracilariopsis persica seaweed as a feed ingredient in Japanese quail: impacts on growth performance, blood biochemistry, carcass traits, cecal microflora, and intestinal morphology. Research Square. Pp. 1-28.

Tossetta, G., Fantone, S., Piani, F., Crescimanno, C., Ciavattini, A., Giannubilo, S.R. and Marzioni, D. 2023. Modulation of NRF2/KEAP1 Signaling in Preeclampsia. *Cells.* 2023 Jun 4;12(11):1545. doi: 10.3390/cells12111545.

Trono, Gavino, C., Lluisma. and Arturo. O. 1992. "Differences in biomass production and carrageenan yields among four strains of farmed carrageenophytes in Northern Bohol, Philippines". *Hydrobiologia*. 247: 223. *doi*:*10.1007/BF00008222*.

Tuwo. 2021. *Seaweed Eucheuma spinosum. J. Agardh 1847, is it a bioaccumulator?* IOP *Conference Series: Earth and Environmental Science*. 763 012052

USDA. 2007. National Nutrient Database for Standard Reference. http://www.nal.usda.gov/foodcomp/search

USDA. 2011. USDA National Nutrient Database for Standard Reference, Release 24. USDA.

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

USDA. Data (U.S. Department of Agriculture). 2019. National Nutrient Database for Standard Reference, Egg Quail. *Andra Farm Headquarters*. Cibinong, Bogor, West Java 16912, Indonesia. Diakses tanggal 06/03/2026. https://andrafarm.com/_andra.php?_i=daftar-usda

Vejdani, N.M., Emtyazjoo, M. and Chamani, M. 2022. Functional Quails Eggs using Enriched Spirulina during the Biosorption Process. Food Science of Animal Resources. 42(1):34-45.

Velázquez-Villegas, L.A., López-Barradas, A.M., Torres, N., Hernández-Pando, R., León-Contreras, J.C. dan Granados, O. 2015. Prolactin and the dietary protein/carbohydrate ratio regulate the expression of SNAT2 amino acid transporter in the mammary gland during lactation. *Biochim Biophys Acta*.1848(5), 1157–1164.

Vinotha, V. and Baskaralingam, V. 2023. Significance of Vitellogenin in Egg Yolk Production and Egg Quality. In: Baskaralingam, V., Vanichviriyakit, R. (eds) Vitellogenin in Fishes- Diversification, Biological Properties, and Future Perspectives. *Springer, Singapore*. pp 197–201. https://doi.org/10.1007/978-981-99-5340-0_14

Wahju, J. 2004. Ilmu Nutrisi Unggas. Gadjah Mada University Press. Yogyakarta.

Wati, L.R, Sargowo, D., Nurseta, T. and Zuhriyah, L. 2023 The Role of Protein Intake on the Total Milk Protein in Lead-Exposed Lactating Mothers. *Nutrients*. 15(11), 2584.

Waugh, A., Grant, A.W. and Ross, J.S. 2001. *Ross and Wilson Anatomy and Physiology in Health and Illness*. 9th ed. Churchill Livingston, an imprint of Elsevier Science Limited. pp 59-71

Wachs, T.D. 2009. Models linking nutritional deficiencies to maternal and child mental health. *The American journal of clinical nutrition*. 89, 935S-939S.

Welman, M.L. 2010. *Hematopoiesis in Schalm's Veterinary Hematology*, 6th ed. Singapore. Blackwell Publishing. pp 27-64.

WHO, 2016. Recommendations on Antenatal Care for a Positive Pregnancy Experience; WHO Press: Geneva, Switzerland, ISBN 9789241549912.

Williams, B. 2007. *Tekanan Darah Tinggi*. Erlangga: Jakarta.

Wulandari, R. 2020. Meningkatkan Hemoglobin pada Ibu Hamil Trimester IIIdengan RebusanBunga Rosella. *Jurnal Bidan Cerdas*. Vol. 2 No. 3: 163-169.

PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L.
Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus
norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Wrzecińska, M., Kowalczyk, A., Czerniawska-Piątkowska, E., Kordan, W. And Araujo, J.P. 2023. Examination of the haematological profile of pregnant Polish Holstein-Friesian black-and-white cattle in the early stage. *Journal of Veterinary Research.* 67(3), 415–425.

Xiao, J.L., Liu, H.Y., Sun, C.C and Tang, C.F. 2024. Regulation of Keap1-Nrf2 signaling in health and diseases. *Molecular Biology Reports.* 13;51(1):809. doi: 10.1007/s11033-024-09771-4.

Xie, C., Elwan, H.A.M., Elnesr, S.S., Dong, X.Y. and Zou, X.T. 2019. Effect of iron glycine chelate supplementation on egg quality and egg iron enrichment in laying hens. *Poultry Science.* 98:7101–7109.

Xue, L., Qi, H., Zhang, H., Ding L., Huang, Q., Zhao, D., Wu, B.J. and Li, X. 2020. Targeting SREBP-2-Regulated Mevalonate Metabolism for Cancer Therapy. *Frontiers in Oncology*. 10:1510. doi: 10.3389/fonc.2020.01510.

Xu, L., Hanigan, M.D., Lin, X., Li X., Li, M., Liu, W., Hu, Z., Hou, Q., Wang, Y. and Wang, Z. 2021. Interactions of amino acids and hormones regulate the balance between growth and milk protein synthesis in lactating rats fed diets differing in protein content. *Journal of Animal Science.* 1;99(2):skab031. doi: 10.1093/jas/skab031.

Xu, Y.C., Yang, D.B., Speakman, J.R and Wang, D.H. 2014. Oxidative stress in response to natural and experimentally elevated reproductive effort is tissue dependent. *Functional Ecology*. 28(2), 402–410.

Yang, J., Zhao, Z., Hou, J., Zhou, Z., Deng, Y. and Dai, J. 2013. Expression of TRPV6 and CaBP-D28k in the egg shell gland (uterus) during the oviposition cycle of the laying hen. *British Poultry Science. 54*, 398–406.

Yang, L., Yang, Y., Jing, Y., Zhang, M., Zhang, M., Zhang, S., Qi, C., Ma, W., Khan, M. Z. and Zhu, M. 2025. Research Progress on Genetic Factors of Poultry Egg Quality: A Review. *Animals*, *15*(24), 3652. https://doi.org/10.3390/ani15243652

Yang, Y., Yang, S., Tang, J., Ren, G., Shen, J., Huang, B., Lei, C., Chen, H. and Qu, K. 2022. Comparisons of Hematological and Biochemical Profiles in Brahman and Yunling Cattle. *Animals*. 12(14):1813.

Youjin, T.U., X.T. Zou and Q. Sheng, 2004. Effect of different iron sources on laying performance and egg quality of Roman hens. *Journal of Zhejiang University*. Vol 30: 561 - 566

UNIVERSITAS GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Yoshida, T. and Delafontaine, P. 2020. Mechanisms of IGF-1-Mediated Regulation of Skeletal Muscle Hypertrophy and Atrophy. *Cells*. 26;9(9):1970. doi: 10.3390/cells9091970.

Yuen, K.C.J, Hjortebjerg, R., Ganeshalingam, A.A., Clemmons, D.R. and Frystyk, J. 2024. Growth hormone/insulin-like growth factor I axis in health and disease states: an update on the role of intra-portal insulin. *Frontiers in endocrinology*. 21;15:1456195. doi: 10.3389/fendo.2024.1456195.

Yuwanta, T. 2004.Dasar Ternak Unggas. Yogyakarta:Kanisius.

Zahid, P.B., Ali, A. and Zahid, E. 2001. Brown seaweed as supplement for broiler feed (pp. 98–101). Hamdard medicus.

Zhang, Y., Ping, W., Leung. P.C., Wu, C.F, Yao, X.S. and Wong, M.S. 2006. Effects of Fructus *Ligustri lucidi* Extract on Bone Turnover and Calcium Balance in Ovariectomized Rats. *Biological and Pharmaceutical Bulletin.* Vol 29(2):291-296.

Zhang, D.L., Ghosh, M.C. and Rouault, T.A. 2014. The physiological functions of iron regulatory proteins in iron homeostasis - an update. *Frontiers Pharmacology*. 13;5:124. doi: 10.3389/fphar.2014.00124..

Zhang, X., Yang, S. Chen, J. and Su, Z. 2019. Unraveling the Regulation of Hepatic Gluconeogenesis. Front Endocrinol (Lausanne). 9, 802. doi: 10.3389/fendo.2018.00802.

Zheng, G.X., Lin., J.T., Zheng., W.H., Cao, J. and Zhao, Z.J. 2015. Energy intake, oxidative stress and antioxidant in mice during lactation. *Dongwuxue Yanjiu.* 36(2), 95–102.

Zhang, Y., Lan, X., Cai, C., Li, R., Gao, Y. and Yang L. 2021. Associations between maternal lipid profiles and pregnancy complications: a prospective population-based study. *American Journal of Perinatology*. 38:834–40. doi: 10.1055/s-0039-3402724.

Zhang, Y., Lan, X., Li, F., Sun, H., Zhang, J. and Li, R. 2022. Dietary cholesterol and egg intake are associated with the risk of gestational diabetes: a prospective study from Southwest China. *BMC Pregnancy Childbirth*. 2022;22:45. doi: 10.1186/s12884-022-04382-y.

Zhang, Y., Kallenberg, C., Hyatt, H.W., Kavazis., A.N. and Hood, W.R. 2017. Change in the Lipid Transport Capacity of the Liver and Blood during Reproduction in Rats. *Frontiers in Physiology*. 8, 517.

UNIVERSITAS
GADJAH MADA
PENINGKATAN KUALITAS TELUR PUYUH MELALUI PEMBERIAN MAKROALGA LAUT Eucheuma denticulatum (N.L. Burman) Collins & Hervey DAN PEMANFAATANNYA DALAM MEMPENGARUHI KONDISI FISIOLOGIS TIKUS PUTIH Rattus norvegicus (Berkenhout, 1769) SAAT BUNTING DAN LAKTASI
Hasan Basri, Dr. Slamet Widiyanto, S.Si., M.Sc.; Prof. Dr. med.vet. Hendry T.S.S.G Saragih., M.P.; Prof. Dr. Ir. Zupriz
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Zhu, W., Mu, Y., Liu, J. and Wang, Z. 2015. Energy requirements during lactation in female *Apodemus chevrieri* (Mammalia: Rodentia: Muridae) in the Hengduan Mountain region. *Italian Journal of Zoology*. 82(2), 165–171.

Zukasti, E. 2003. *Peran Leukosit Sebagai Anti Inflamasi Alergik Dalam Tubuh*. Bagian Histologi Fakultas Kedokteran Universitas Sumatra Utara.