

DAFTAR PUSTAKA

- Ahmadnia, H., M. Ghanbari, M.R. Moradi. and M.K. Dalouee. 2007. Effect of Cigarette Smoke on Spermatogenesis in Rats. *Urol Journal*. 4(3) : 159-163.
- Ajuogu, P.K., O.O. Mgbere., D.S. Bila. and J.R. McFarlance. 2019. Hormonal Changes, Semen Quality and Variance in Reproductive Activity Outcomes of Post Pubertal Rabbits fed *Moringa oleifera* Lam. Leaf Powder. *J. Ethnopharmacology*. 233 : 80-86.
- Akbar, B. 2010. Tumbuhan dengan Kandungan Senyawa Aktif yang Berpotensi sebagai Bahan Antifertilitas. Adabia Press. UIN Syarif Hidayatullah. Jakarta.
- Almeida, M.C., A.A. Steiner., L.G.S. Branco. and A.A. Romanovsky. 2006. Cold-seeking Behavior as a Thermoregulatory Strategy in Systemic Inflammation. *J. Neuroscience banner*. 23(12) : 3359-3367.
- Arsana, I.N. 2014. Ekstrak Kulit Buah Manggis (*Garcinia mangostana* L) dan Pelatihan Fisik Menurunkan Stres Oksidatif pada Tikus Wistar (*Rattus norvegicus*) selama Aktivitas Fisik Maksimal [Disertasi]. Universitas Udayana.
- Astuti, S. 2008. Isoflavon Kedelai dan Potensinya sebagai Penangkap Radikal Bebas. *J. Teknologi Industri dan Hasil Pertanian*. 13(2) : 126-136.
- Bolanos, X.C., R.C. Vega., R.R. Camacho., M.R. Gomez., G.F.L. Pina. and S.H.G. Maldonado. 2018. Moringa Infusion (*Moringa oleifera*) Rich in Phenolic Compounds and High Antioxidant Capacity Attenuate Nitric Oxide Pro-Inflammatory Mediator In-Vitro. *J. Industrial Crops and Products*. 118 : 95-101.
- Botham, K.M. and P.A. Mayes. 2009. The Respiratory Chain and Oxidative Phosphorilation. Eds. Harper's Illustrated Biochemistry, Ed 28th Mc Graw Hill Lange. 103-112.
- Clarkson, P. and H.S. Thomson. 2000. Antioxidants: What Role do They Play in Physical Activity and Health. *American Journal of Clinical Nutrition*. 72 : 637-646.
- Cobley, J.N., H. McHardy., J.P. Morton., M.G. Nikolaidis. and G.L. Close. 2015. Influence of Vitamin C and Vitamin E on Redox Signaling: Implications

- for Exercise Adaptations. *J. Free Radical Biology and Medicine*. 84 : 65-76.
- Constantinescu, G.M. 2007. Anatomy of Reproductive Organs. In: Schatten, H., Constantinescu, G.M., editor. *Comparative Reproductive Biology*. Ames: Blackwell Publishing. p 13-59.
- Dachana, K.B., J. Rajiv., D. Indrani. and J. Prakash. 2010. Effect of Dried Moringa (*Moringa oleifera* Lam) Leaves on Rheological, Microstructural, Nutritional, Textural and Organoleptic Characteristics of Cookies. *J. Food Quality*. 33 : 660-667.
- Darazon, A., T. Nishigakhi. and C. Beltran. 2011. Calcium Channels in the Development, Maturation and Function of Spermatozoa. *Physiol Rev*. 91 : 1305-1355.
- Diez, C.E., V. Miguel., D. Mennerich., T. Kietzmann., P.S. Perez., S. Cadenas. and S. Lamas. 2015. Antioxidant Responses and Cellular Adjustments to Oxidative Stress. *J. Redox Biology*. 6 : 183-197.
- Durairajanayagam, D., A. Agarwal. and P. Prashast. 2014. Lycopene and Male Infertility. *Asian J Androl*. 16(3) : 420-425.
- Ekambaram, S.P., S.S. Perumal. and V. Subramanian. 2011. Assessment of the In-vivo and In-vitro Antioxidant Potential of *Strychnos potatorum* Linn. Seeds in Freund's Adjuvant Induced Arthritic Rats. *J. Medicinal Plants Research*. 5(19) : 4780-4787.
- Ermiza, E. 2012. Pengaruh Paparan Suhu Terhadap Kualitas Spermatozoa Mencit Jantan (*Mus musculus*) Strain Jepang. *J. Saintis*. 1(2) : 20-27.
- Eroschenko, V.P. 2017. *Atlas Histology with Functional Correlations Thirteenth Edition*. Wolters Kluwer. China.
- Febrianti, N. 2018. Hubungan Pemanasan Global dengan Kondisi Suhu Udara dan Curah Hujan di Indonesia. LAPAN. Bandung. P 299.
- Fick, L.G., T.A. Kucio., A. Fuller., A. Matthee. and D. Mitchell. 2009. The Relative Roles of the Parasol-like Tail and Burrow Shuttling in Thermoregulation of Free-ranging Cape Ground Squirrels, *Xerus inauris*. *J. Comparative Biochemistry and Physiology*. 152(3) : 334-340.
- Fitriana, W. D., S. Fatmawati. and T. Ersam. 2015. Uji Aktivitas Antioksidan terhadap DPPH dan ABTS dari Fraksi-Fraksi Daun Kelor (*Moringa oleifera*). *Prosiding Simposium Nasional Inovasi dan Pembelajaran Sains di Bandung 8-9 Juni 2015*.

- Flecknell, P. 2016. *Laboratory Animal Anaesthesia*. 4th Ed. Academic Press. The Boulevard, Langford Lane, Kidlington Oxford OX5 1GB.
- Franka, L.R., T. Ogawa., M.R. Avarbock., R.L. Brinster. and L.D. Russell. 1998. Germ Cell Genotype Controls Cell Cycle during Spermatogenesis in the Rat. *J Biology Of Reproduction*. 59 : 1371-1377.
- Ge, R. and M.P. Hardy. 2007. Regulation of Leydig Cells During Pubertal Development. In: Payne AH, Hardy MP (eds) *The Leydig Cell in Health*.
- Green, S.B. and N.J. Salkind. 2016. *Using SPSS for Windows and Macintosh, Books a la Carte (8th Edition)*. Association for Computing Machinery.
- Griswold, M.D. 2016. Spermatogenesis: The Commitment to Meiosis. *J. Physiol Rev*. 96(1) : 1-17.
- Hafez, E.S.E. and B. Hafez. 2013. *Reproduction in Farm Animals*. 7th Edition. Kiawah Island, South California, USA.
- Hamererezaee, M., S.F. Dehghan., F. Golbabaei., A. Fathi., L. Barzegar. and N. Heidarnajad. 2018. Assessment of Semen Quality among Workers Exposed to Heat Stress: A Cross-Sectional Study in a Steel Industry. 9(2) : 232-235.
- Hardijanto., S. Susilowati., T. Hernawati., T. Sardjito. dan T.W. Suprayogi. 2010. *Buku Ajar Inseminasi Buatan*. Airlangga University Press. Surabaya.
- Harmita, R.M. 2012. *Buku Ajar Analisis Hayati Edisi 3*. Jakarta: Penerbit Buku Kedokteran EGC. Hal 184-185.
- He, T.B., Y.P. Huang., Y.W. Huang., X.J. Wang., J.M. Hu. and J. Sheng. 2018. Structural Elucidation and Antioxidant Activity of an Arabinogalactan from the Leaves of *Moringa oleifera*. 112 : 126-133.
- Hedrich, H. J. 2012. *The Laboratory Mouse Second Edition*. Academic Press. Italy.
- Hestianah, E.P., C. Anwar., S. Kuncorojakti., dan L.R. Yustinasari. 2012. *Buku Ajar Histologi Veteriner Jilid I*. Airlangga University Press. Surabaya. 4-5.
- Husain, N. and A. Kumar. 2012. Reactive Oxygen Species and Natural Antioxidants: A Review. *J. ABR*. 3(4) : 164-175.
- Integrated Taxonomic Information System., 2019. *Moringa oleifera* Lam. //http:www.itis.gov. Taxonomy Serial No : 503874. [20 Januari 2019].

- Ismudiono., H. Anwar., P. Srianto., S.P. Madyawati., A. Samik. dan E. Safitri. 2010. Buku Ajar Fisiologi Reproduksi Pada Ternak. Airlangga University Press. Surabaya.
- Jhonsen, S.G. 1970. Testicular Biopsy Score Count- A Method for Registration of Spermatogenesis in Human Testes: Normal Values and Results in 335 Hypogonadal Males. *Hormones Research in Paediatrics*. 1 : 2-25.
- Kefer, J., A. Agrawal. and E. Sabanegh. 2009. Role of Antioxidants in the Treatment of Male Infertility. *Int. J. Urol*. 16 : 449-457.
- Kersten, M. and W. Visser. 1996. The Rate of Food Processing in the Oystercatcher: Food Intake and Energy Expenditure Constrained by a Digestive Bottleneck. *J. Functional Ecology*. 10 : 440-448.
- Kim, B., K. Park. and K. Rhee. 2013. Heat Stress Response of Male Germ Cells. *Int. J. Cell. Mol. Life Sci*. 70 : 2623-2636.
- Kotze, J., N.C. Bennett. and M. Scantlebury. 2008. The energetics of Huddling in Two Species of Mole-Rat (Rodentia: Bathyergidae). *J. Physiology and Behavior*. 93(1-2) : 215-221.
- Kurniasih. 2013. Khasiat dan Manfaat Daun Kelor untuk Penyembuhan Berbagai Penyakit. Pustaka Baru Press. Yogyakarta.
- Kusminingrum, N. 2008. Potensi Tanaman dalam Menyerap CO₂ dan CO untuk Mengurangi Dampak Pemanasan Global. *J. Permukiman*. 3(2) : 96-105.
- Kusriningrum, R. 2012. Dasar Perancangan Percobaan dan Rancangan Acak Lengkap. Fakultas Kedokteran Hewan Universitas Airlangga. Surabaya.
- Leon, L.R., C.J. Gordon., B.G. Helwig., D.M. Rufolo. and M.D. Blaha. 2010. Thermoregulatory, Behavioral, and Metabolic Responses to Heatstroke in a Conscious Mouse Model. *Am J Physiol Regul Integr Comp Physiol*. 299 : R241-R248.
- Leone, A., A. Spada., A. Battezzati., A. Schiraldi., J. Aristil. and S. Bertoli. 2015. Cultivation, Genetic, Ethnopharmacology, Phytochemistry and Pharmacology of *Moringa oleifera* Leaves : An Overview. *Int. J. Mol. Sci*. 16 : 12791-12835.
- Li, G., Z.Z. Xie., J.M.W. Chua., P.C. Wong. and J. Bian. 2015. Hydrogen Sulfide Protects Testicular Germ Cells Against Heat-Induced Injury. *J. Nitric Oxide*. 46 : 165-171.
- Liu, X.Y., S.X. Zhang., C.F. Hao., L.L. Zuang. and X. Huang. 2016. Effects of Apigenin on Scrotal Heat-Induced Damage in Mice Testis. *Int. J. Clinical Expert Medicine*. 9(3) : 6342-6347.

- Lopez, L.H.C., I.L. Ocampo., M.L.C. Nunez., R.C. Vega., S. Mendoza. and G.L. Pina. 2019. Effect of the In Vitro Gastrointestinal Digestion on Free-Phenolic Compounds and Mono/Oligosaccharides from *Moringa oleifera* Leaves: Bioaccessibility, Intestinal Permeability and Antioxidant Capacity. *J. Food Research International*. 120 : 631-642.
- Margaritelis, N.V., J.N. Cobley., V. Paschalis., A.S. Veskoukis., A.A. Theodorou., A. Kyparos. and M.G. Nikolaidis. 2016. Going Retro: Oxidative Stress Biomarkers in Modern Redox Biology. *J. Free Radical Biology and Medicine*. 98 : 2-12.
- Meinshausen, M., N. Meinshausen., W. Hare., S.C.B. Raper., K. Frieler., R. Knutti., D.J. Frame. and M.R. Allen. 2009. Greenhouse-gas Emission Targets for Limiting Global Warming to 2⁰C. *J. Nature*. 458 : 1158-1162.
- Mohamed, M., S.A. Sulaiman., H. Jaafar. and K.N.S. Sirajudeen. 2011. Antioxidant Protective Effect of Honey in Cigarette Smoke-Induced Testicular Damage in Rats. *Int. J. Mol. Sci*. 12 : 5508-5521.
- Morgan, C. 2012. Plasticity in photoperiodic regulation of adrenal, but not testicular, function in Syrian hamsters. *General and Comparative Endocrinology*. 178:441–449.
- Nouman, W., F. Anwar., T. Gull., A. Newton., E. Rosa. and R.D. Perles. 2016. Profiling of Polyphenolics, Nutrients and Antioxidant Potential of Germplasm's Leaves from Seven Cultivars of *Moringa oleifera* Lam. *J. Industrial Crops and Products*. 83 : 166-176.
- Ogunsola, O.A., J.O. Owolabi., O.S. Fabiyi., N.L. Nwobi., B. Faluyi. and A.S. Akinbola. 2017. Moringa Plant Parts Consumption Had Effects on Reproductive Functions in Male and Female Rat Models. *J. Dent. Med. Sci*. 16(10) : 82-86.
- Ozcan, M.M. 2018. Moringa spp: Composition and bioactive properties. *South African Journal of Botany*. 121: 1-7.
- Pandey, A., R.D. Pandey., P. Tripathi., P.P. Gupta., J. Haider., S. Bhatt. and A.V. Singh. 2012. Moringa oleifera Lam. (Sahijan) – A Plant with A Plethora of Diverse Therapeutic Benefits: An Updated Retrospection. *Int. J. Medicinal Aromatic Plants*. 1(1) : 1-8.
- Qwele, K., A. Hugo., S.O. Oyedemi., B. Moyo., P.J. Masika. and V. Muchenje. 2013. Chemical Composition, Fatty Acid Content and Antioxidant Potential of Meat from Goats Supplemented with Moringa (*Moringa oleifera*) Leaves, Sunflower Cake and Grass Hay. *J. Meat Science*. 93(3) : 455-462.

- Reczek, C.R. and N.S. Chandel. 2015. ROS-dependent Signal Transduction. *J. Cell Biology*. 33 : 8-13.
- Safitri, E. and M. Hariadi. 2019. Comparison of Biotechnological Culture of Hypoxia-conditioned Rat Mesenchymal Stem Cells with Conventional *in vitro* Culture of Normoxia-conditioned Rat Mesenchymal Stem Cells for Testicular Failure Therapy with Low Libido in Rats. *J. Veterinary World*. 12(6) : 916-924.
- Sailer, B.L., L.J. Sarkar., J.A. Bjordahl., L.K. Jost. and D.P. Evenson. 1997. Effect of Heat Stress on Mouse Testicular Cells and Sperm Chromatin Structure. *J. Andrology*. 18(3) : 294-301.
- Samik, A. and E. Safitri. 2017. Potency of Micotoxin Binders on MDA Level, Expressions of Caspase 9 and Caspase 3 in the Uterus of Mice Exposed to Zearalenone. *Iraqi Journal of Veterinary Sciences*. 31(1) : 29-33.
- Santos, A.F.S., A.C.C. Argolo., P.M.G. Paiva. and L.C.B.B. Coelho. 2012. Antioxidant Activity of *Moringa oleifera* Tissue Extracts. *J. Phytother. Res*. 26(9) : 1366-1370.
- Santos, J.R., S. Varum., S. Amaral., P.C. Mota., A.P. Sousa. and A. Amaral. 2009. Mitochondrial Functionality in Reproduction: from Gonads and Gametes to Embryos and Embryonic Stem Cells. *Int. J. Human Reproduction Update*. 15(5) : 553-572.
- Sengupta, P. 2013. The Laboratory Rat: Relating Its Age With Human's. *Int. J Prev. Med*. 4(6) : 624-630.
- Sharma, R. and V.J. Singh. 2010. In Vivo Antioxidant Activity of *Moringa Oleifera* Leaf and Pod Extracts Against Carbon Tetra Chloride Induced Liver Damage in Albino Mice. *J. Chemical and Pharmaceutical Research*. 2(6) : 275-283.
- Slimen, I.B., T. Najjar., A. Ghram. and M. Abdrrabba. 2016. Heat Stress Effects on Livestock: Molecular, Cellular and Metabolic Aspects, a Review. *J. Animal Physiology and Animal Nutrition*. 100(3) : 401-412.
- Sobotta, M.C., W. Liou., S. Stocker., D. Talwar., M. Oehler., T. Ruppert., A.N.D. Scharf. and T.P. Dick. 2015. Peroxiredoxin-2 and STAT3 Form a Redox Relay for H₂O₂ Signaling. *J. Nature Chemical Biology*. 11 : 64-70.
- Soenardirahardjo, B.P., Widjiati., M. Mafruchati. dan E.M. Luqman. 2011. *Buku Ajar Embriologi*. Airlangga University Press. Surabaya.
- Sreelatha, S. and P.R. Padma. 2009. Antioxidant Activity and Total Phenolic Content of *Moringa oleifera* Leaves in Two Stages of Maturity. *Int. J. Plant Foods Hum. Nutr*. 64 : 303-311.

- Sumbera, R., J. Zelova., P. Kunc., I. Knizkova. and H. Burda. 2007. Patterns of Surface Temperatures in Two Mole-Rats (Bathyergidae) with Different Social Systems as Revealed by IR-Thermography. *J. Physiology and Behavior*. 92(3) : 526-532.
- Toripah, S.S., J. Abidjulu. dan F. Wehantou. 2014. Aktivitas Antioksidan dan Kandungan Total Fenolik Ekstrak Daun Kelor (*Moringa oleifera Lam*). *J. Pharmacon*. 3(4) : 37-43.
- Ulfana, I. 2014. Pengaruh Boraks ($\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$) Terhadap Jumlah Sel Spermatogonium dan Sel Sertoli pada Gambaran Histopatologi Testis Tikus Putih (*Rattus norvegicus*) [Skripsi]. Fakultas Kedokteran Hewan. Universitas Airlangga. Surabaya.
- Umar, S. H., E. De Queljo. and L. Tendean. 2015. Pengaruh pemberian Ekstrak Kulit Buah Manggis (*Garcinia mangostana L*) Terhadap Kualitas Spermatozoa Wistar Jantan (*Rattus norvegicus*) yang diberi Paparan Suhu Panas. *J. e-Biomedik (eBm)*. 3(2) : 670-675.
- Wang, Y., Y. Gao., H. Ding., S. Liu., X. Han., J. Gui. and Liu. 2017. Subcritical Ethanol Extraction of Flavonoids from *Moringa oleifera* Leaf and Evaluation of Antioxidant Activity. *J. Food Chemistry*. 218 : 152-158.
- Widayati, E. 2012. Oksidasi Biologi, Radikal Bebas, dan Antioxidant. *Majalah Ilmiah Sultan Agung*. Vol 50. No 128.
- Winarsi, H.M.S. 2007. Antioksidan Alami dan Radikal Bebas. Kanisius : Yogyakarta.
- Zandalinas, S.I. and R. Mittler. 2018. ROS-induced ROS Release in Plant and Animal Cells. *J. Free Rad. Bio. Med*. 122 : 21-27.