DAFTAR PUSTAKA

1. Aslam A, Mehmood U, Arshad MH, et al. Dye-sensitized solar cells (DSSCs) as a potential photovoltaic technology for the self-powered internet of things (IoTs) applications. *Solar Energy*. 2020;207(May):874-892.

2. Tim Sekretaris Jenderal Dewan Energi Nasional. Indonesia Energy Out Look 2019. *Journal of Chemical Information and Modeling*. 2019;53(9):1689-1699.

3. Hosenuzzaman M, Rahim NA, Selvaraj J, Hasanuzzaman M, Malek ABMA, Nahar A. Global prospects, progress, policies, and environmental impact of solar photovoltaic power generation. *Renewable and Sustainable Energy Reviews*. 2015;41:284-297.

4. Setiadji S, Ivansyah AL, Pribadi AB. Studi Komputasi Senyawa Berbasis Anisil Indol Dengan Senyawa Akseptor Asam Sianoakrilik Sebagai Sensitizer Solar Sel Organik. *Al-kimiya.* 2015;2(1).

5. Wibawa A, Santosa B, Mulyatno IP, Diponegoro U, Alternatif E. Pemanfaatan Tenaga Angin Dan Surya Sebagai Alat Pembangkit Listrik Pada Bagan Perahu. *Kapal*. 2014;11(3):108-116.

6. Li Y, Liu J, Liu D, Li X, Xu Y. D-A-π-A based organic dyes for efficient DSSCs: A theoretical study on the role of π-spacer. *Computational Material Science*. 2019;161(January):163-176.

7. Dutta R, Ahmed S, Kalita DJ. Theoretical design of new triphenylamine based dyes for the fabrication of DSSCs: A DFT/TD-DFT study. *Material Today Communication*. 2020;22(October 2019):100731.

8. Bashir R, Makhdoom AR, Bilal MK, Ahmad Badar M. Comparative study of the photovoltaic behavior of ruthenium and the other organic and inorganic Dye-Sensitized Solar Cells (DSSC). *Optik (Stuttg)*. 2018;157:11-15.

9. Mathew S, Yella A, Gao P, et al. Dye-sensitized solar cells with 13% efficiency achieved through the molecular engineering of porphyrin sensitizers. *Nature Chemistry*. 2014;6(3):242-247.

10. Amkassou A, Zgou H. New dyes for DSSC containing thienylen-phenylene: A theoretical investigation. *Material Today : Proceeding*. 2019;13:569-578.

11. Mendoza-Wilson AM, Santacruz-Ortega H, Balandrán-Quintana RR. Relationship between structure, properties, and the radical scavenging activity of morin. *Journal of Molecular Structure*. 2011;995(1-3):134-141.

12. Rahayu D, Bagitaningtyas A, Hidayat A, P AS. (Dye Sensitized Solar Cell) Dengan Senyawa Morin Dari Kayu Nangka (Artocarpus Heterophyllus L .). 2001;2.

13. Pranowo HD. Pengantar Kimia Komputasi. Published online 2011:4-5:118.

14. Wen Y, Wu W, Li Y, et al. First principles study of thieno[2,3-b]indole-based organic dyes for dye-sensitized solar cells: Screen novel π-linkers and explore the interface between photosensitizers and TiO2. *Journal of Power Sources*. 2016;326:193-202.

15. Climent C, Cabau L, Casanova D, Wang P, Palomares E. Molecular dipole, dye structure and electron lifetime relationship in efficient dye sensitized solar cells based on donor-π-acceptor organic sensitizers. *Organic Electronics*. 2014;15(11):3162-3172.

16. Galappaththi K, Ekanayake P, Petra MI. A rational design of high efficient and low-cost dye sensitizer with exceptional absorptions: Computational study of cyanidin based organic sensitizer. *Solar Energy*. 2018;161(October 2017):83-89.

17. Jadhav MM, Chowdhury TH, Bedja I, Patil D, Islam A, Sekar N. Near IR emitting novel rhodanine-3-acetic acid based two donor-π-acceptor sensitizers for DSSC: Synthesis and application. *Dye and Pigment*. 2019;165(February):391-399.

18. Liu X, He R, Shen W, Li M. Molecular design of donor-acceptor conjugated copolymers based on C-, Si- and N-bridged dithiophene and thienopyrroledione derivatives units for organic solar cells. *Journal of Power Sources*. 2014;245:217-223.

19. Xu Z, Li Y, Li Y, et al. Theoretical study of T shaped phenothiazine/carbazole based organic dyes with naphthalimide as π-spacer for DSSCs. *Spectrochimica Acta - Part A : Molecular and Biomolecular Spectroscopy*. 2020;233:118201.

20. Naik P, Elmorsy MR, Su R, Babu DD, El-Shafei A, Adhikari AV. New carbazole based metal-free organic dyes with D-Π-A-Π-A architecture for DSSCs: Synthesis, theoretical and cell performance studies. *Solar Energy*. 2017;153:600-610.

21. Obotowo IN, Obot IB, Ekpe UJ. Organic sensitizers for dye-sensitized solar cell (DSSC): Properties from computation, progress and future perspectives. *Journal of Molecular Structure*. 2016;1122:80-87.

22. Zdyb A, Krawczyk S. Adsorption and electronic states of morin on TiO2 nanoparticles. *Chemical Physics*. 2014;443:61-66.

23. Tarsang R, Promarak V, Sudyoadsuk T, Namuangruk S, Jungsuttiwong S. Tuning the electron donating ability in the triphenylamine-based D-π-A architecture for highly efficient dye-sensitized solar cells. *Journal of Photochemistry and Photobiology A : Chemistry*. 2014;273:8-16.

24. He LJ, Chen J, Bai FQ, Jia R, Wang J, Zhang HX. Fine-tuning π-spacer for high efficiency performance DSSC: A theoretical exploration with D−π−A based organic dye. *Dye and Pigment*. 2017;141:251-261.

25. Yang W, Vlachopoulos N, Hao Y, Hagfeldt A, Boschloo G. Efficient dye regeneration at low driving force achieved in triphenylamine dye LEG4 and TEMPO redox mediator based dye-sensitized solar cells. *Physical Chemistry Chemistry Physic*. 2015;17(24):15868-15875.

26. Daeneke T, Mozer AJ, Kwon TH, et al. Dye regeneration and charge recombination in dye-sensitized solar cells with ferrocene derivatives as redox mediators. *Energy Environmental Science*. 2012;5(5):7090-7099.

27. El-Meligy AB, Koga N, Iuchi S, et al. DFT/TD-DFT calculations of the electronic and optical properties of bis-N,N-dimethylaniline-based dyes for use in dye-sensitized solar cells. *Journal of Photochemical Photobiology A : Chemistry*. 2018;367:332-346.

28. Estrella LL, Lee SH, Kim DH. New semi-rigid triphenylamine donor moiety for D-π-A sensitizer: Theoretical and experimental investigations for DSSCs. *Dye and Pigment*. 2019;165(February):1-10.

29. Lokhande PKM, Patil DS, Sekar N. Viscosity sensitive red shifted novel D-π-A

carbazole chromophore with chlorine in π-spacer: Synthesis, photophysical properties, NLO study and DFT approach. *Journal of Luminescence*. 2019;211(December 2018):162-175.

30. Tripathi A, Ganjoo A, Chetti P. Influence of internal acceptor and thiophene based π -spacer in D-A- π -A system on photophysical and charge transport properties for efficient DSSCs : A DFT insight. *Solar Energy*. 2020;209(August):194-205.

31. Zhu W, Wu Y, Wang S, et al. Organic D-A-π-A solar cell sensitizers with improved stability and spectral response. *Advance Functional Material*. 2011;21(4):756-763.

32. Pounraj P, Mohankumar V, Pandian MS, Ramasamy P. Donor functionalized quinoline based organic sensitizers for dye sensitized solar cell (DSSC) applications: DFT and TD-DFT investigations. *Journal of Molecular Modeling*. 2018;24(12).

33. Aminullah MW, Setiawan H, Huda A, Pengaruh Komposisi Material Semikonduktor Dalam Menurunkan Energi Band Gap Terhadap Konversi Gelombang Mikro. *J EECCIS*. 2019;13(2):65-70.

34. Due YP, Bukit M, Johannes AZ. Kajian Awal Spektrum Serapan Uv−Vis Senyawa Hasil Ekstrak Daun Jeruk Nipis (Citrus Aurantifolia) Asal Tarus Kabupaten Kupang. *Jurnal Fisika : Fisika Sains dan Aplikasi*. 2019;4(1):40-47.