

REFERENCES

- 1 India Vision 2020. Planning commission. New Delhi (2002). Government of India.
- 2 International Energy Outlook. Energy Information Administration (2006, June), Office of Integrated Analysis and Forecasting. Washington DC: US Department of Energy. Retrieved from www.eia.doe.gov/oiaf/ieo/index.html
- 3 Security of Global Oil Flows: Risk Assessment for India. (2011, November 9-15). ORF Energy News Monitor, 8(22).
- 4 Demirbas, A. H., & Demirbas, I. (2007). Importance of rural bioenergy for developing countries. *Energy Conversion and Management*, 48, 2386–2398.
- 5 Jegannathan, K. R., Chan, E.-S., & Ravindra, P. (2009). Harnessing biofuels: A global Renaissance in energy production? *Renewable and Sustainable Energy Reviews*, 13, 2163–2168.
- 6 Sharma, Y. C., & Singh, B. (2009). Development of biodiesel: Current scenario. *Renewable and Sustainable Energy Reviews*, 13, 1646–1651.
- 7 Observer research Foundation. (2005, November). *Energy News Monitor*.
- 8 Lee, H. V., Yunus, R., Juan, J. C., & Taufiq-Yap, Y. H. (2011). Process optimization design for jatropha-based biodiesel production using response surface methodology. *Fuel Processing Technology*, 92, 2420-2428.
- 9 WTRG Economics. (2011). Retrieved May 15, 2012, from Energy Economist Newsletter: <http://www.wtrg.com/prices.htm>
- 10 International energy outlook (2011). Department of Energy. Washtington: US Energy Information Administration.

- 11 International Energy Outlook (2011). Energy Information Administration, Office of Integrated Analysis and Forecasting, U.S. Department of Energy, Washington DC.
- 12 Getting Warmer. (2009, December 3). Retrieved November 19, 2012, from The Economist: <http://www.economist.com/node/14994872>
- 13 Lim, S., & Lee, K. T. (2011). Effects of solid pre-treatment towards optimizing supercritical methanol extraction and transesterification of Jatropha curcas L. seeds for the production of biodiesel. *Separation and Purification Technology*, 81, 363-370.
- 14 Varun, & Singal, S. K. (2007). Review of augmentation of energy needs using renewable energy sources in India. *Renewable & Sustainable energy reviews*, 11, 1607-1615.
- 15 Sharma, Y. C., Singh, B., & Upadhyay, S. N. (2008). Advancements in development and characterization of biodiesel: A review. *Fuel*, 87, 2355–2373.
- 16 Chandrasekar, B., & Kandpal, T. C. (2007). An opinion survey based assessment of renewable energy technology development in India. *Renewable & sustainable energy technology development in India*, 11, 688-701.
- 17 Kumar, A., Kumar, K., Kaushik, N., Sharma, S., & Mishra, S. (2010). Renewable energy in India: Current status and future potentials. *Renewable and Sustainable Energy Reviews*, 14, 2434–2442.
- 18 Bhattacharya, S. C., & Jana, C. (2009). Renewable energy in India: Historical developments and prospects. *Energy*, 34, 981-991.
- 19 Wen, D., Jiang, H., & Zhang, K. (2009). Supercritical fluids technology for clean biofuel production. *Progress in Natural Science*, 19, 273-284.

- 20 Patil, V., Tran, K.-Q., & Giselrod, H. R. (2008). Towards Sustainable Production of Biofuels from Microalgae. International Journal of Molecular Science, 9, 1188-1195.
- 21 Demirbas, M. F. (2009). Biorefineries for biofuel upgrading: A critical review. Applied Energy, 86, S151–S161.
- 22 Cai, Y., Sun, D., Guojiang, W., & Peng, J. (2010). ISSR-based genetic diversity of *Jatropha curcas* germplasm in China. Biomass and Bioenergy, 34, 1739-1750.
- 23 Zeng-Hui, L., & Hong-Bo, S. (2010). Comments: Main developments and trends of international energy plants. Renewable and Sustainable Energy Reviews, 14, 530–534
- 24 Altin, R., Cetinkaya, S., & Yucesu, H. S. (2001). The potential of using vegetable oil fuels as fuel for diesel engines. Energy Conversion and Management, 42, 529-538.
- 25 Divakara, B. N., Upadhyaya, H. D., Wani, S. P., & Gowda, C. L. (2010). Biology and genetic improvement of *Jatropha curcas* L.: A review. Applied Energy, 87, 732_742.
- 26 Kumar, S., Chaube, A., & Jain, S. K. (2012). Critical review of *Jatropha* biodiesel promotion policies in India. Energy Policy, 41, 775-781.
- 27 Jingura, R. M. (2011). Technical options for optimization of production of *Jatropha* as a biofuel feedstock in arid and semi-arid areas of Zimbabwe. Biomass & Bioenergy, 35, 2127-2132.
- 28 Ganapathy, T., Gakkhar, R. P., & Murugesan, K. (2011). Influence of injection timing on performance, combustion and emission characteristics of *Jatropha* biodiesel engine. Applied Energy, 88, 4376–4386.
- 29 Ranganathan, S. V., Narasimhan, S. L., & Muthukumar, K. (2008). An overview of enzymatic production of biodiesel. Bioresource Technology, 99, 3975–3981.

- 30 FAPRI. (2008). Retrieved December 27, 2012, from US and World Agricultural Outlook: http://www.grida.no/graphicslib/detail/world-biofuels-production-trends_d3ec
- 31 Pandey, K. K., Pragya, N., & Sahoo, P. K. (2011). Life cycle assessment of small-scale high-input Jatropha biodiesel production in India. *Applied Energy*, 88(12), 4831-4839.
- 32 Country analysis briefs. (2009). Retrieved 07 15, 2010, from Energy Information Administration.: <http://www.eia.doe.gov/cabs/India/pdf.pdf>
- 33 Report of the committee on development of Bio-fuel (2003). Planning commission, Gouvernement of India, New Delhi.
- 34 Francis, G., Edinger, R., & Becker, K. (2005). A concept for simultaneous wasteland reclamation, fuel production, and socio-economic development in degraded areas in India: need, potential and perspectives of Jatropha plantations. *Natural Resources Forum*, 29, 12-24.
- 35 Abou-Shanab, R. A., Hwang, J. H., Cho, Y., Min, B., & Jeon, B. H. (2011). Characterization of microalgal species isolated from fresh water bodies as a potential source for biodiesel production. *Applied Energy*, 88, 3300-3306.
- 36 Demirbas, A. (2010). Use of algae as biofuel sources. *Energy Conversion and Management*, 51, 2738-2749.
- 37 Subramanian, K. A., Singal, S. K., Saxena, M., & Singhal, S. (2005). Utilization of liquid biofuels in automotive diesel engines: an Indian perspective. *Biomass Bioenergy*, 29(1), 65-72.
- 38 Demirbas, A. (2009). Progress and recent trends in biodiesel fuels. *Energy Conversion and Management*, 50(1), 14–34.
- 39 Pradhan, R. C., Naik, S. N., Bhatnagar, N., & Vijay, V. K. (2009). Moisture-dependent physical properties of Jatropha fruit. *Industrial Crops and Products*, 29, 341-347.

- 40 Yadav, S. K., Juwarkar, A. A., Kumar, G. P., & Thawale, P. R. (2009). Bioaccumulation and phyto-translocation of arsenic, chromium and zinc by *Jatropha curcas* L.: Impact of dairy sludge and biofertilizer. *Bioresource Technology* 4616–4622, 100, 4616–4622.
- 41 Gressel, J. (2008). Transgenics are imperative for biofuel crops. *Plant Science*, 174(3), 246-263.
- 42 Biswas, P. K., Pohit, S., & Kumar, R. (2010). Biodiesel from *Jatropha*: Can India meet the 20% blending target? *Energy Policy*, 38, 1477-1484.
- 43 Achten, W. M. J. (2010). Life cycle assessment of *Jatropha* biodiesel as transportation fuel in rural India. *Applied Energy*, 87(12), 3652-3660.
- 44 Prueksakorn, K., Gheewala, S. H., Malakul, P., & Bonnet, S. (2010). Energy analysis of *Jatropha* plantation systems for biodiesel production in Thailand. 14(1), 1-5.
- 45 Behera, S. K., Srivastava, P., Tripathi, R., Singh, J. P., & Singh, N. (2010). Evaluation of plant performance of *Jatropha curcas* L. under different agro-practices for optimizing biomass-A case study. *Biomass & Bioenergy*, 34, 30-41.
- 46 Montobbio, P. A., & Lele, S. (2010). *Jatropha* plantations for biodiesel in Tamil Nadu, India: viability, livelihood trade-offs, and latent conflict. *Ecol Econ*, 70(2), 189-195.
- 47 Openshaw, K. (2000). A review of *Jatropha curcas*: an oil plant of unfulfilled promise. *Biomass & Bioenergy*, 19, 1-15.
- 48 Romijn, H. A. (2010). Land clearing and greenhouse gas emissions from *Jatropha* biofuels on African Miombo woodlands. *Energy Policy*.

- 49 Fulke, A. B., Mudliar, S. N., Yadav, R., Shekh, A., Srinivasan, N., Ramanan, R., Chakrabarti, T. (2010). Bio-mitigation of CO₂, calcite formation and simultaneous biodiesel precursors production using Chlorella sp. *Bioresource Technology*, 101(21), 8473-8476.
- 50 Pate, R., Klise, G., & Wu, B. (2011). Resource demand implications for US algae biofuels production scale-up. *Applied Energy*, 88(10), 3377-3388.
- 51 Um, B. H., & Kim, Y. S. (2009). Review: A chance for Korea to advance algal-biodiesel technology. *Journal of Industrial and Engineering Chemistry*, 15(1), 1-7.
- 52 Markou, G., & Georgakakis, D. (2011). Cultivation of filamentous cyanobacteria (blue-green algae) in agro-industrial wastes and wastewaters: A review. *Applied Energy*, 88(10), 3389-3401.
- 53 Maceiras, R., Rodríguez, M., Cancela, A., Urrejola, S., & Sanchez, A. (2011). Macroalgae: Raw material for biodiesel production. *Applied Energy*, 88(10), 3318-3323.
- 54 Odlare, M., Nehrenheim, E., Ribe, V., Thorin, E., Gavare, M., & Grube, M. (2011). Cultivation of algae with indigenous species – Potentials for regional biofuel production. *Applied Energy*, 88(10), 3280-3285.
- 55 Kovacevic, V., & Wesseler, J. (2010). Cost- effective analysis of algae energy production in the EU. *Energy Policy*, 38(10), 5749-5757.
- 56 Scott, S. A., Davey, M. P., Dennis, J. S., Horst, I., Howe, C. J., Lea-Smith, D. J., & Smith, A. G. (2010). Biodiesel from algae: challenges and prospects. *Current Opinion in Biotechnology*, 21(3), 277-286.
- 57 Gallagher, B. J. (2011). The economics of producing biodiesel from algae. *Renewable Energy*, 36(1), 158-162.

- 58 Hu, Q., Sommerfeld, M., Jarvis, E., Ghirardi, M., Posewitz, M., Seibert, M., & Darzins, A. (2008). Microalgal triacylglycerols as feedstocks for biofuel production: perspectives and advances. *Harnessing plant biomass for biofuels and biomaterials. The Plant Journal*, 54, 621-639.
- 59 Amaro, H. M., Guedes, A. C., & Malcata, F. X. (2011). Advances and perspectives in using microalgae to produce biodiesel. *Applied Energy*, 88(10), 3402-3410.
- 60 Phukan, M. M., Chutia, R. S., Konwar, B. K., & Kataki, R. (2011). Microalgae Chlorella as a potential bio-energy feedstock. *Applied Energy*, 88(10), 3307-3312.
- 61 Lim, S., & Teong, L. K. (2010). Recent trends, opportunities and challenges of biodiesel in Malaysia: An overview. *Renewable and Sustainable Energy Reviews*, 14(3), 938-954.
- 62 Takeshita, T. (2011). Competitiveness, role, and impact of microalgal biodiesel in the global energy future. *Applied Energy*, 88(10), 3481-3491.
- 63 McNeff, C. V., McNeef, L. C., Yan, B., Nowlan, D. T., Rasmussen, M., Gyberg, A. E., Hoye, T. R. (2008). A continuous catalytic system for biodiesel production. *Applied Catalysis A: General*, 343, 39-48.
- 64 Umdu, E. S., Tuncer, M., & Seker, E. (2009). Transesterification of *Nannochloropsis oculata* microalga's lipid to biodiesel on Al₂O₃ supported CaO and MgO catalysts. *Bioresource Technology*, 100(11), 2828-2831.
- 65 Subhadra, B. G. (2011). Water management policies for the algal biofuel sector in the Southwestern United States. *Applied Energy*, 88(10), 3492-3498.
- 66 Smith, V. H., Sturm, B. S., deNoyelles, F. J., & Billings, S. A. (2010). The ecology of algal biodiesel production. *Trends in Applied Energy*, 88(10), 3492-3498.

- 67 Surek, B. (2008). Meeting Report: Algal Culture Collections 2008. An International Meeting at the Culture Collection of Algae and Protozoa (CCAP), Dunstaffnage Marine Laboratory, Dunbeg, Oban, United Kingdom; 8—11. *Protist*, 159, 509-517.
- 68 Durrett, T. P., Benning, C., & Ohlroggel, J. (2008). Plant triacylglycerols as feedstocks for the production of biofuels. Harnessing plant biomass for biofuels and biomaterials. *The Plant Journal*, 54, 593–607.
- 69 Tang, H., Abunasser, N., Garcia, M. E., Chen, M., Simon, K. Y., & Salley, S. O. (2011). Potential of microalgae oil from Dunaliella tertiolecta as a feedstock for biodiesel. ; 88(10):. *Applied Energy*, 88(10), 3324-3330.
- 70 Pruvost, J., Vooren, G. V., Gouic, B. L., Couzinet-Mossion, A., & Legrand, J. (2011). Systematic investigation of Biomass and lipid productivity by microalgae in photobioreactors for biodiesel application. *Bioresource Technology*, 102(1), 150-158.
- 71 Converti, A., Casazza, A. A., Ortiz, E. Y., Perego, P., & Borghi, M. D. (2009). Effect of temperature and nitrogen concentration on the growth and lipid content of *Nannochloropsis oculata* and *Chlorella vulgaris* for biodiesel production. *Chemical Engineering and Processing: Process Intensification*, 48(6), 1146-1151.
- 72 Queiroz, M. I., Hornes, M. O., da Silva-Manetti, A. G., & Jacob-Lopes, E. (2011). Single-cell oil production by cyanobacterium *Aphanethece microscopica* Nägeli cultivated heterotrophically in fish processing wastewater. *Applied Energy*, 88(10), 3438-3443.
- 73 Li, Y. G., Xu, L., Huang, Y. M., Wang, F., Guo, C., & Liu, C. Z. (2011). Microalgal biodiesel in China: Opportunities and challenges. *Applied Energy*, 88(10), 3432-3437.

- 74 Kunjapur, A. M., & Eldridge, R. B. (2010). Photobioreactor design for commercial biofuel production from Microalgae. *Ind. Eng. Chem.*, 49, 3516-3526.
- 75 Liu, J., Huang, J., Sun, Z., Zhong, Y., Jiang, Y., & Chen, F. (2011). Differential lipid and fatty acid profiles of photoautotrophic and heterotrophic *Chlorella zofingiensis*: Assessment of algal oils for biodiesel production. *Bioresource Technology*, 102(1), 106-111.
- 76 Harun, R., Singh, M., Forde, G. M., & Danquah, M. K. (2010). Bioprocess engineering of microalgae to produce a variety of consumer products. *Renewable and Sustainable Energy Reviews*, 14, 1037-1047.
- 77 Bhatnagar, A., Chinnasamy, S., Singh, M., & Das, K. C. (2011). Renewable biomass production by mixotrophic algae in the presence of various carbon sources and wastewaters. *Applied Energy*, 88(10), 3425-3431.
- 78 Chinnasamy, S., Bhatnagar, A., Hunt, R. W., & Das, K. C. (2010). Microalgae cultivation in a wastewater dominated by carpet mill effluents for biofuel applications. *Bioresource Technology*, 101(9), 3097-3105.
- 79 Sydney, E. B., da Silva, T. E., Tokarski, A., Novak, A. C., de Carvalho, J. C., Woiciechowski, A. L., . . . Soccil, C. R. (2011). Screening of microalgae with potential for biodiesel production and nutrient removal from treated domestic sewage. *Applied Energy*, 88(10), 3291-3294.
- 80 Xin, L., Hong-ying, H., Ke, G., & Ying-xue, S. (2010). Effects of different nitrogen and phosphorus concentrations on the growth, nutrient uptake, and lipid accumulation of a freshwater microalga *Scenedesmus* sp. *Bioresource Technology*, 101, 5494-5500.
- 81 Lardon, L., Helias, A., Sialve, B., Steyer, J. P., & Bernard, O.

- (2009). Life-Cycle Assessment of Biodiesel production from Microalgae.
- 82 Razon, L. F., & Tan, R. R. (2011). Net energy analysis of the production of biodiesel and biogas from the microalgae: *Haematococcus pluvialis* and *Nannochloropsis*. *Applied Energy*, 88(10), 3507-3514.
- 83 Collet, P., Helias, A., Lardon, L., Ras, M., Goy, R.-A., & Steyer, J.-P. (2011). Life-cycle assessment of microalgae culture coupled to biogas production. *Bioresource Technology*, 102, 207-214.
- 84 Khoo, H. H., Sharratt, P. N., Das, P., Balasubramanian, R. K., Naraharisetti, P. K., & Shaik, S. (2011). Life cycle energy and CO₂ analysis of microalgae-to-biodiesel: Preliminary results and comparisons. *Bioresource Technology*, 102, 5800-5807.
- 85 Baumann, H., & Tillman, A. M. (2004). The Hitch Hiker's guide to LCA: An orientation in life cycle assessment methodology and application.
- 86 Jorquera, O., Kiperstok, A., Sales, E. A., Embirucu, M., & Ghirardi, M. L. (2010). Comparative energy life-cycle analyses of microalgal biomass production in open ponds and photobioreactors. *Bioresource Technology*, 101, 1406-1413.
- 87 Stephenson, A. I., Kazamia, E., Dennis, J. S., Howe, C. J., Scott, S. A., & Smith, A. G. (2010). Life cycle assessment of potential algal biodiesel production in the United Kingdom: a comparison of raceways and air-lift tubular bioreactors. *Energy Fuels*, 24, 4062-4077.
- 88 Gubitz, G. M., Mittelbach, M., & Trabi, M. (1999). Exploitation of the tropical oil seed plant *Jatropha curcas*. *Bioresource Technology*, 67, 73-82.
- 89 Lestari, D., Mulder, W. J., & Sanders, J. P. (2011). *Jatropha* seed protein functional properties for technical applications.

Biochemical Engineering Journal, 297–304.

- 90 Roach, J. S., Devappa, R. K., Makkar, H. P., & Becker, K. (2012). Isolation, stability and bioactivity of *Jatropha curcas* phorbol esters. *Fitoterapia*.
- 91 Kumar, A., & Sharma, S. (2008). An evaluation of multipurpose oil seed crop for industrial uses (*Jatropha curcas* L.): A review. *Industrial Crops and Products*, 28, 1-10.
- 92 Aderbigbe, A. O., Johnson, C. O., Makkar, H. P., Becker, K., & Foidl, N. (1997). Chemical composition and effect of heat on organic matter- and nitrogen-degradability and some antinutritional components of *Jatropha* meal. *Animal Feed Science Technology*, 67, 223-243.
- 93 Hamarneh, A. I., Heeres, H. J., Broekhuis, A. A., & Picchioni, F. (2010). Extraction of *Jatropha curcas* proteins and application in polyketone-based wood adhesives. *International Journal of Adhesion & Adhesives*, 30, 615-625.
- 94 Behera, S. K., Srivastava, P., Tripathi, R., Singh, J. P., & Singh, N. (2010). Evaluation of plant performance of *Jatropha curcas* L. under different agro-practices for optimizing biomass – a case study. *Biomass Bioenergy*, 34(1), 30-41.
- 95 Ranade, S. A., Srivastava, A. P., Rana, T. S., Srivastava, J., & Tuli, R. (2008). Easy assessment of diversity in *Jatropha curcas* L. plants using two single-primer amplification reaction (SPAR) methods. *Biomass & Bioenergy*, 32, 533-540.
- 96 Xu, R., Wang, R., & Liu, A. (2011). Expression profiles of genes involved in fatty acid and triacylglycerol synthesis in developing seeds of *Jatropha* (*Jatropha curcas* L.). *Biomass & Bioenergy*, 35, 1683-1692.

- 97 Manurung, R., Wever, D. A., Wildschut, J., Venderbosch, R. H.,
Hidayat, H., vanDam, J. E., Heeres, H. J. (2009). Valorisation of
Jatropha curcas L. plant parts: Nut shell conversion to fast
pyrolysis oil. *Food and Bioproducts Processing*, 87, 187-196.
- 98 Jingura, R. M., Matengaifa, R., Musademba, D., & Musiyiwa, K.
(2011). Characterization of land types and agro-ecological
conditions for production of *Jatropha* as a feedstock for biofuels in
Zimbabwe. *Biomass & Bioenergy*, 35, 2080-2086.
- 99 Rodriguez, R. P., Perez, L. G., Alfanso, M., Duarte, M., Caro, R.,
Galle, J., Verhelst, S. (2011). Characterization of *Jatropha curcas*
oils and their derived fatty acid ethyl esters obtained from two
different plantations in Cuba. *Biomass & Bioenergy*, 35, 4092-
4098.
- 100 Makkar, H. P., Kumar, V., Oyeleye, O. O., Akinleye, A. O.,
Angulo-Escalante, M. A., & Becker, K. (2011). *Jatropha*
platyphylla, a new non-toxic *Jatropha* species: Physical properties
and chemical constituents including toxic and antinutritional
factors of seedsew. *Food Chemistry*, 125, 63-71.
- 101 Whitaker, M., & Heath, G. (2009). Life Cycle Assessment of the
Use of *Jatropha* Biodiesel in Indian Locomotives. Technical
Report, U.S. Department of Energy, National Renewable Energy
Laboratory, Colorado.
- 102 Maes, W. H., Achteren, W. M., Reubens, B., Raes, D., Samson, R.,
& Muys, B. (2009). Plant-water relationships and growth
strategies of *Jatropha curcas* L. seedlings under different levels of
drought stress. *Journal of Arid Environments*, 73, 877-884.
- 103 Pradhan, R. C., Naik, S. N., Bhatnagar, N., & Vijay, V. K. (2010).
Design, development and testing of hand-operated decorticator for
Jatropha fruit. *Applied energy*, 87, 762-768.

- 104 Achten, W. M., Verchot, L., Franken, J., Mathijs, E., Singh, V. P., Aerts, R., & Muys, B. (2008). Jatropha bio-diesel production and use. *Biomass & Bioenergy*, 32, 1063-1084.
- 105 Deng, X., Fang, Z., Liu, Y.-h., & Yu, C.-L. (2011). Production of biodiesel from Jatropha oil catalyzed by nanosized solid basic catalyst. *Energy*, 36, 777-784.
- 106 Shah, S., Sharma, A., & Gupta, M. N. (2005). Extraction of oil from *Jatropha curcas* L. seed kernels by combination of ultrasonication and aqueous enzymatic oil extraction. *Bioresource Technology*, 96, 121-123.
- 107 Shah, S., Sharma, A., & Gupta, M. N. (2004). Extraction of oil from *Jatropha curcas* L. seed kernels by enzyme assisted three phase partitioning. *Industrial Crops and Products*, 20, 275-279.
- 108 Sahoo, P. K., & Das, L. M. (2009). Process optimization for biodiesel production from Jatropha, Karanja and Polanga oils. *Fuel*.
- 109 Chen, W. H., Chen, C. H., Chang, C.-M. J., Chiu, Y. H., & Hsiang, D. (2009). Supercritical carbon dioxide extraction of triglycerides from *Jatropha curcas* L. seeds. *The Journal of Supercritical Fluids*, 51, 174-180.
- 110 Robles-Medina, A., González-Moreno, P. A., Esteban-Cerdán, L., & Molina-Grima, E. (2009). Biocatalysis: Towards ever greener biodiesel production. *Biotechnology Advances*, 27(4), 398-408.
- 111 Pramanik, K. (2003). Properties and use of *Jatropha curcas* oil and diesel fuel blends in compression ignition engine. *Renewable Energy*, 28(2), 239-248.
- 112 Foidl, N., Foidl, G., Sanchez, M., Mittelbach, M., & Hackel, S. (1996). *Jatropha curcas* L. as a source for the production of biofuel in Nicaragua. *Bioresource Technology*, 58, 77-82.

- 113 Arvidsson, R., Persson, S., Froling, M., & Svanstrom, M. (2011). Life cycle assessment of hydrotreated vegetable oil from rape, oil palm and Jatropha. *J Cleaner Prod.*, 19(2-3), 129–137.
- 114 Fukuda, H., Kondo, A., & Noda, H. (2001). Biodiesel fuel production by transesterification of oils. *J Biosci Bioeng.*, 92, 405–416.
- 115 Robles-Medina, A., González-Moreno, P. A., Esteban-Cerdán, L., & Molina-Grima, E. (2009). Biocatalysis: Towards ever greener biodiesel production. *Biotechnology Advances*, 27(4), 398-408.
- 116 Sahoo, P. K., & Das, L. M. (2009). Combustion analysis of Jatropha, Karanja and Polanga based biodiesel as fuel in a diesel engine. *Fuel*, 88(6), 994-999.
- 117 Rawat, I., Kumar, R. R., Mutanda, T., & Bux, F. (2011). Dual role of microalgae:Phycoremediation of domestic wastewater and biomass production for sustainable biofuels production. *Applied Energy*, 88, 3411-3424.
- 118 Berchmans, H. J., & Hirata, S. (2008). Biodiesel production from crude Jatropha curcas L. seed oil with a high content of free fatty acids. *Bioresource Technology*, 99, 1716-1721.
- 119 Schuchardt, U., Ricardo, S. R., & Vargas, R. M. (1998). Transesterification of vegetable oils: a review. *J Brazil Chem Soc*, 9, 199–210.
- 120 Tan, K. T., Lee, K. T., & Mohamed, A. R. (2010). Potential of waste palm cooking oil for catalysts free biodiesel production. *Energy*, 35, 1-4.
- 121 Juan, J. C., Kartika, D. A., Wub, T. Y., & Hin, T.-Y. Y. (2011). Biodiesel production from jatropha oil by catalytic and non-catalytic approaches:An overview. *Bioresource Technology*, 102, 452-460.

- 122 Rathore, V., & G. M. (2007). Synthesis of biodiesel from edible and non-edible oils in supercritical alcohols and enzymatic synthesis in supercritical carbon dioxides. *Fuel*, 86, 2650-2659.
- 123 Hawash, S., Kamal, N., Zaher, F., Kenawi, O., & El Diwani, G. (2009). Biodiesel fuel from Jatropha oil via non-catalytic supercritical methanol transesterification. *Fuel*, 88, 579-582.
- 124 Amin, S. (2009). Review on biofuel oil and gas production processes from microalgae. *Energy Conversion and Management*, 50, 1834-1840.
- 125 Kouame, S.-D. B. (2011). Comparative characterization of Jatropha, soybean and commercial biodiesel. *Journal of fuel chemistry and technology*, 39(4), 258-264.
- 126 Chen, C.-R., Cheng, Y.-J., Ching, Y.-C., Hsiang, D., & Chang, C.-M. J. (2012). Green production of energetic Jatropha oil from de-shelled Jatropha curcas L.seeds using supercritical carbon dioxide extraction. *The Journal of Supercritical Fluids*.
- 127 Sarin, A., Arora, R., Singh, N. P., Sarin, R., Malhotra, R. K., Sharma, M., & Khan, A. A. (2010). Synergistic effect of metal deactivator and antioxidant on oxidation stability of metal contaminated Jatropha biodiesel. *Energy*, 35, 2333-2337.
- 128 Sahoo, P. K., Das, L. M., Babu, M. K., Arora, P., Singh, V. P., Kumar, N. R., & Varyani, T. S. (2009). Comparative evaluation of performance and emission characteristics of Jatropha, karanja and polanga based biodietractor enginesel as fuel in a. *Fuel*, 88(9), 1698-1707.
- 129 Raheman, H., & Mondal, S. (2012). Biogas production potential of jatropha seed cake. *Biomass & Bioenergy*, 37, 25-30.
- 130 Liang, Y., Cui, Y., Trushenski, J., & Blackburn, J. W. (2010). Converting crude glycerol derived from yellow grease to lipids through yeast fermentation. *Bioresource Technology*, 101, 7581-

7586.

- 131 Karatay, S. E., & Donmez, G. (2010). Improving the lipid accumulation properties of the yeast cells for biodiesel production using molasses. *Bioresource Technology*, 101(20), 7988-7990.
- 132 Demirbas, M. F. (2011). Biofuels from algae for sustainable development. *Applied Energy*, 88(10), 3473-3480.
- 133 Demirbas, A. (2011). Biodiesel from oilgae, biofixation of carbon dioxide by microalgae: A solution to pollution problems. *Applied Energy*, 88(10), 3541-3547.
- 134 Harwood, J. L., & Guschina, I. A. (2009). The versatility of algae and their lipid metabolism. *Biochimie*, 91, 679- 684.
- 135 Meng, X., Yang, J., Xu, X., Zhang, L., Nie, Q., & Xian, M. (2009). Biodiesel production from oleaginous microorganisms. *Renewable Energy*, 34(1), 1-5.
- 136 Morowvat, M. H., Rasoul-Amini, S., & Ghasemi, Y. (2010). Chlamydomonas as a “new” organism for biodiesel production. *Bioresource Technology*, 101(6), 2059-2062.
- 137 Subhadra, B. G., & Edwards, M. (2011). Coproduct market analysis and water footprint of simulated commercial algal biorefineries. *Applied Energy*, 88, 3515-3523.
- 138 Durrett, T. P., Benning, C., & Ohlroggel, J. (2008). Plant triacylglycerols as feedstocks for the production of biofuels. Harnessing plant biomass for biofuels and biomaterials. *The Plant Journal*, 54, 593–607.
- 139 Mohr, H., & Schopher, P. (1995). *Plant physiology*. New York: Springer- Verlag Berlin Heidelberg.
- 140 Amaro, H. M., Guedes, C., & Malcata, X. (2011). Advances and perspectives in using microalgae to produce biodiesel. *Applied Energy*, 88, 3402–3410.

- 141 Oh, S. H., Han, J. G., Kim, Y., Ha, J. H., Kim, S. S., Jeong, M. H., Cho, J. S. (2009). Lipid production in *Porphyridium cruentum* grown under different culture conditions. *Journal of Bioscience and Bioengineering*, 108(5), 429-434.
- 142 Slegers, P. M., Wijffels, R. H., Straten, G., & Boxtel, A. J. (2011). Design scenarios for flat panel photobioreactors. *Applied Energy*, 88(10), 3342-3353.
- 143 Ketheesan, B., & Nirmalakhandan, N. (2011). Development of a new airlift-driven raceway reactor for algal cultivation. *Applied Energy*, 88(10), 3370-3376.
- 144 Oh, S. H., Kwon, M. C., Choi, W. Y., Seo, Y. C., Kim, G. B., Kang, D. H., Lee, H. Y. (2010). Long- term outdoor cultivation by perfusing spent medium for biodiesel production from *Chlorella minutissima*. *Journal of Bioscience and Bioengineering*, 110(2), 194-200.
- 145 Dragone, G., Fernandes, B. D., Abreu, A. P., Vicente, A. A., & Teixeira, J. A. (2011). Nutrient limitation as a strategy for increasing starch accumulation in microalgae. *Applied Energy*, 88(10), 3331-3335.
- 146 Ota, M., Kato, Y., Watanabe, H., Watanabe, M., Sato, Y., Smith, J. R., & Inomata, H. (2009). Fatty acid production from a highly CO₂ tolerant alga, *Chlorocuccum littorale*, in the presence of inorganic carbon and nitrate. *Bioresource Technology*, 100, 5237–5242.
- 147 Wang, L., Li, Y., Chen, P., Min, M., Chen, Y., Zhu, J., & Ruan, R. (2010). Anaerobic digested dairy manure as a nutrient supplement for cultivation of oil-rich green microalgae *Chlorella* sp. *Bioresource Technology*, 101, 2623–2628.
- 148 Lv, J. M., Cheng, L. H., Xu, X. H., Zhang, L., & Chen, H. L. (2010). Enhanced lipid production of *Chlorella vulgaris* by (2010). Enhanced lipid production of *Chlorella vulgaris* by

- adjustment of cultivation conditions. *Bioresource Technology*, 101, 6797-6804.
- 149 Rosenberg, J. N., Oyler, G. A., Wilkinson, L., & Betenbaugh, M. J. (2008). A green light for engineered algae: redirecting metabolism to fuel a biotechnology revolution. *Current Opinion in Biotechnology*, 19(5), 430-436.
- 150 Huang, G. H., Chen, G., & Chen, F. (2009). Rapid screening method for lipid production in alga based on Nile red fluorescence. *Biomass and Bioenergy*, 33, 1386-1392.
- 151 Davis, R., Aden, A., & Pienkos, P. T. (2011). Techno-economic analysis of autotrophic microalgae for fuel production. *Applied Energy*, 88, 3524-3531.
- 152 Rasoul-Amini, S., Montazeri-Najafabady, N., Mobasher, M. A., Hoseini-Alhashemi, S., & Ghasemi, Y. (2011). Chlorella sp.: A new strain with highly saturated fatty acids for biodiesel production in bubble-column photobioreactor. *Applied Energy*, 88(10), 3354-3356.
- 153 Chisti, Y., & Yan, J. (2011). Energy from algae: Current status and future trends: Algal biofuels – A status report. *Applied Energy*, 88(10), 3277-3279.
- 154 Singh, A., Nigam, P. S., & Murphy, J. D. (2011). Renewable fuels from algae: An answer to debatable land based fuels. *Bioresource Technology*, 102(1), 10-16.
- 155 Demirbas, A. (2011). Competitive liquid biofuels from biomass. *Applied Energy*, 88, 17–28.
- 156 Xiong, W., Gao, C., Yan, D., Wu, C., & Wu, Q. (2010). Double CO₂ fixation in photosynthesis–fermentation model enhances algal lipid synthesis for biodiesel production. *Bioresource Technology*, 101(7), 2287-2293.

- 157 Jamers, A., Blust, R., & Coen, W. D. (2009). Omics in algae: Paving the way for a systems biological understanding of algal stress phenomena. *Aquatic Toxicology*, 92, 114-121.
- 158 Jiang, L., Luo, S., Fan, X., Yang, Z., & Guo, R. (2011). Biomass and lipid production of marine microalgae using municipal wastewater and high concentration of CO₂. *Applied Energy*, 88(10), 3336-3341.
- 159 Gao, C., Zhai, Y., Ding, Y., & Wu, Q. (2010). Application of sweet sorghum for biodiesel production by heterotrophic microalga Chlorella protothecoides. *Applied Energy*, 87(3), 756-761.
- 160 Aresta, M., Dibenedetto, A., & Barberio, G. (2005). Utilization of macro-algae for enhanced CO₂ fixation and biofuels production: Development of a computing software for an LCA study. *Fuel Processing Technology*, 86 (14–15), 1679–1693.
- 161 Sturm, B. S., & Lamer, S. L. (2011). An energy evaluation of coupling nutrient removal from wastewater with algal biomass production. *Applied Energy*, 88(10), 3499-3506.
- 162 González-Fernández, C., Molinuevo-Salces, B., & García-González, M. C. (2011). Evaluation of anaerobic codigestion of microalgal biomass and swine manure via response surface methodology. 2011; 88 (10): 3448-3453 n26. *Applied Energy*, 88(10), 3448-3453.
- 163 Uduman, N., Qi, Y., Danquah, M. K., & Hoadley, A. F. (2010). Marine microalgae flocculation and focused beam reflectance measurement. *Chemical Engineering Journal*, 162, 935-940.
- 164 Chen, C. Y., Yeh, K. L., Aisyah, R., Lee, D. J., & Chang, J. S. (2011). Cultivation, photobioreactor design and harvesting of microalgae for biodiesel production: A critical review. *Bioresource Technology*, 102, 71-81.

- 165 Park, J. K., Craggs, R. J., & Shilton, A. N. (2011). Wastewater treatment high rate algal ponds for biofuel production. *Bioresource Technology*, 102, 35-42.
- 166 Gouveia, L. (2011). *Microalgae as a Feedstock for Biofuels* (Vol. 68). Springer.
- 167 Sirin, S., Trobajo, R., Ibanez, C., & Salvado, J. (2012). Harvesting the microalgae *Phaeodactylum tricornutum* with polyaluminum chloride, aluminium sulphate, chitosan and alkalinity-induced flocculation. *Journal of Applied Phycology*, 24, 1067–1080.
- 168 Park, J. B., & Craggs, R. J. (2010). Wastewater treatment and algal production in high rate algal ponds with carbon dioxide addition. *Water Science and Technology*, 61, 633–639.
- 169 Taher, H., Al-Zuhair, S., Al-Marzouqi, A. H., Haik, Y., & Farid, M. M. (2011). A Review of Enzymatic Transesterification of Microalgal Oil-Based Biodiesel Using Supercritical Technology. *Enzyme Research*, 1-25.
- 170 Halim, R., Gladman, B., Danquah, M. K., & Webley, P. A. (2011). Oil extraction from microalgae for biodiesel production. *Bioresource Technology*, 102, 178-185.
- 171 Extraction of Algal Oil by Chemical Methods. Retrieved 10 15, 1012, from Oilgae: <http://www.oilgae.com/algae/oil/extract/che/che.html>
- 172 Konur, O. (2011). The scientometric evaluation of the research on the algae and bio-energy. *Applied Energy*, 88(10), 3532-3540.
- 173 Damiani, M. C., Popovich, C. A., Constenla, D., & Leonardi, P. I. (2010). Lipid analysis in *Haematococcus pluvialis* to assess its potential use as a biodiesel feedstock. *Bioresource Technology*, 101, 3801–3807.
- 174 Li, Y., Lian, S., Tong, D., Song, R., Yang, W., Fan, Y., Hu, C. (2011). One-step production of biodiesel from *Nannochloropsis* sp.

- on solid base Mg-Zr catalyst. *Applied Energy*, 88, 3313-3317.
- 175 D'Oca, M. G., Viegas, C. V., Lemoes, J. S., Miyasaki, E. K., Morón-Villarreyes, J. A., Primel, E. G., & Abreu, P. C. (2011). Production of FAMEs from several microalgal lipid extracts and direct transesterification of the *Chlorella pyrenoidosa*. *Biomass and Bioenergy*, 35, 1533-1538.
- 176 Yang, Z., Guo, R., Xu, X., Fan, X., & Li, X. (2010). Enhanced hydrogen production from lipid-extracted microalgal biomass residues through pretreatment. *International Journal of Hydrogen Energy*, 35, 9618-9623.
- 177 Yang, Z., Guo, R., Xu, X., Fan, X., & Luo, S. (2011). Fermentative hydrogen production from lipid-extracted microalgal biomass residues. *Applied Energy*, 88, 3468-3472.
- 178 A national vision of Americas transition in a hydrogen economy - in 2030 and beyond (2002). U.S., Department of Energy.
- 179 Grant, B. (2009). Biofuels made from algae are the next big thing on alternative energy horizon. *Scientist*, 37-41.
- 180 Shen, Z., Zhou, J., X, Z., & Zhang, Y. (2011). The production of acetic acid from microalgae under hydrothermal conditions. *Applied Energy*, 88, 3444-3447.
- 181 Vardon, D. R., Sharma, B. K., Scott, J., Yu, G., Wang, Z., & Schideman, L. (2011). Chemical properties of biocrude oil from the hydrothermal liquefaction of *Spirulina* algae, swine manure, and digested anaerobic sludge. *Bioresource Technology*, 102, 8295-8303.
- 182 Brown, T. M., Duan, P., & Savage, P. E. (2010). Hydrothermal Liquefaction and Gasification of *Nannochloropsis* sp. *Energy Fuels*, 24, 3639-3646.
- 183 Demirbas, A. (2009). *Fuels from Biomass*. Springer.

- 184 Vispute, T. P., Zhang, H., Sanna, A., Xiao, R., & Huber, G. W. (2010). Renewable Chemical Commodity Feedstocks from Integrated Catalytic Processing of Pyrolysis Oils. *Science*.
- 185 Sialve, B., Bernet, N., & Bernard, O. (2009). Anaerobic digestion of microalgae as a necessary step to make microalgal biodiesel sustainable. *Biotechnology Advances*, 27, 409-416.
- 186 Singh, A., & Olsen, S. I. (2011). A critical review of biochemical conversion, sustainability and life cycle assessment of algal biofuels. *Applied Energy*, 88(10), 3548-3555.
- 187 Balat, M. (2009). Production of Hydrogen via Biological Processes. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 31, 1802-1812.
- 188 Openshaw, K. (2000). A review of Jatropha curcas: an oil plant of unfulfilled promise. *Biomass Bioenergy*, 19(1), 1-15.
- 189 Sudha, P., & Ravindranath, N. H. (1999). Land availability and biomass production and potential in India. *Biomass Bioenergy*, 16(3), 207-221.
- 190 Roach, J. S., Devappa, R. K., Makkar, H. P., & Becker, K. (2012). Isolation, stability and bioactivity of Jatropha curcas phorbol esters. *Fitoterapia*.
- 191 Report of the committee on development of bio-fuel (2003). Planning Commission. Government of India.
- 192 Kumar, S., Chaube, A., & Jain, K. S. (2012). Sustainability issues for promotion of Jatropha biodiesel in Indian scenario: A review. *Renewable and Sustainable Energy Reviews*, 16, 1089-1098.
- 193 Srivastava, P., Behera, S. K., Gupta, J., Jamil, S., & Singh, N. (2011). Growth performance, variability in yield traits and oil content of selected accessions of Jatropha curcas L. growing in a large scale plantation site. *Biomass & Bioenergy*, 35, 3936-3942.

- 194 Maes, W. H., Trabucco, A., Achten, W. M., & Muys, B. (2009). Climatic growing conditions of *Jatropha curcas* L. Biomass and Bioenergy, 33, 1481 – 1485.
- 195 Rajaona, A. M., Brueck, H., & Asch, F. (2011). Effect of pruning history on growth and dry mass partitioning of jatropha on a plantation site in Madagascar. Biomass & Bioenergy, 35, 4892-4900.
- 196 Abdelgadir, H. A., Kulkarni, M. G., Arruda, M. P., & Staden, J. V. (2012). Enhancing seedling growth of *Jatropha curcas*—A potential oil seed crop for biodiesel. South African Journal of Botany, 78, 88-95.
- 197 Valdes-Rodriguez, O. A., Sanchez-Sanchez, O., Perez-Vazquez, A., & Ruiz-Bello, R. (2011). Soil texture effects on the development of *Jatropha* seedlings e Mexican variety 'pin' o'n manso'. Biomass & Bioenergy, 35, 3529-3536.
- 198 Bouffaron, P., Castagno, F., & Herold, S. (2012). Straight vegetable oil from *Jatropha curcas* L. for rural electrification in Mali - A techno-economic assessment. Biomass & Bioenergy, 37, 298- 308.
- 199 Achten, W. M., Verchot, L., Franken, y. J., Mathijs, E., Singh, V. P., Aerts, R., & Muys, B. (2008). *Jatropha* bio-diesel production and use. Biomass & Bioenergy, 32, 1063-1084.
- 200 The energy and resource institute. Retrieved May 18, 2012, from Reclamation of wastelands contaminated with chlor alkali sludge: <http://www.teriin.org/technology/wastelands.php>
- 201 Kesava Rao, A. V., Wani, S. P., Singh, P., Srivinas, K., & Rao, C. S. (2012). Water requirement and use by *Jatropha curcas* in a semi-arid tropical locatio, 39, 175-181.
- 202 Ghosh, A., Chikara, J., & Chaudhary, D. R. (2011). Diminution of economic yield as affected by pruning and chemical manipulation

- of *Jatropha curcas* L.. *Biomass & Bioenergy*, 35, 1021-1029.
- 203 Gasol, C. M. (2009). LCA of poplar bioenergy system compared with *Brassica carinata* energy crop and natural gas in regional scenario. *Biomass Bioenergy*, 33(1), 119-129.
- 204 Yee, K. F., Tan, K. T., Abdullah, A. Z., & Lee, K. T. (2009). Life cycle assessment of palm biodiesel: revealing facts and benefits for sustainability. *Applied Energy*, 86(1), S189–196.
- 205 Pleanjai, S., & Gheewala, S. H. (2009). Full chain energy analysis of biodiesel production from palm oil in Thailand. *Applied Energy*, 86(1), S209–214.
- 206 Souza, S. P., Pacca, S., Ávila, M. T., & Borges, J. L. (2010). Greenhouse gas emissions and energy balance of palm oil biofuel. *Renewable Energy*, 35(11), 2552-2561.
- 207 Xunmin, O., Xiliang, Z., Shiyan, C., & Qingfang, G. (2009). Energy use and GHG emissions of six biofuel pathways by LCA in (the) People's Republic of China. *Applied Energy*, 86(1), S197–208.
- 208 Malik, U. S., Ahmed, M., Sombilla, M. A., & Cueno, S. L. (2009). Biofuels production for smallholder producers in the Greater Mekong Sub-region. *Applied Energy*, 86(1), S58–68.
- 209 Aggarwal, G. C. (1995). Fertilizer and irrigation management for energy conservation in crop production. *Energy*, 20(8), 771-776.
- 210 Lal, R. (2004). Carbon emission from farm operations. *Environ Int*, 30(7), 981-990.
- 211 Retrieved July 25, 2010, from Centre for Science and Environment (2007), New Delhi: <[http://www.cseindia.org/userfiles/79-90%20Fertilizer\(1\).pdf](http://www.cseindia.org/userfiles/79-90%20Fertilizer(1).pdf)>
- 212 Ghosh, S. (2010). Status of thermal power generation in India—perspectives on capacity, generation and carbon dioxide emissions.

Energy Policy, 38(11), 6886-6899.

- 213 Davis, R., Aden, A., & Pienkos, P. T. (2011). Techno-economic analysis of autotrophic microalgae for fuel production. Applied Energy, 88(10), 3524-3531.
- 214 Solid Waste Management and Greenhouse Gases. A life-cycle assessment of emissions and sinks. (2002, May). Retrieved July 26, 2010, from EPA: <www.epa.gov/climatechange/wycc/waste/downloads/greengas.pdf>
- 215 Retrieved August 5, 2010, from Environmental Protection Agency, US Government: <http://www.epa.gov>
- 216 Assessment of Energy use and Energy Savings Potential in Selected Industrial Sectors in India (2005). Ernest Orlando Lawrence Berkeley National Laboratory, The climate protection division, office of air and radiation, US Environmental Protection Agency, US Department of Energy.
- 217 Schumacher, K., & Sathaye, J. (2009). India's fertilizer industry: productivity and energy efficiency. Ernest Orlando Lawrence Berkely National laboratory, Environmental science division, Berkely National laboratory, Environmental Research (OBER), US Office of Biological and Environmental Research (OBER), US Department of Energy.
- 218 Malla, S. (2009). CO₂ emissions from electricity generation in seven Asia-Pacific and North American countries: a decomposition analysis. Energy Policy, 37(1), 1-9.
- 219 Report of the expert committee on fuels for power generation (2004). Central Electricity Authority, Planning Wing. New Delhi: Government of India. Retrieved December 18, 2012, from http://www.cea.nic.in/reports/articles/thermal/expert_committee_report_fuel.pdf

- 220 Delrue, F., Setier, P. A., Sahut, C., Cournac, L., Roubaud, A., Peltier, G., & Froment, A. K. (2012). An economic, sustainability, and energetic model of biodiesel production from microalgae. *Bioresource Technology*.
- 221 Malkow, T. (2004). Novel and innovative pyrolysis and gasification technologies for energy efficient and environmentally sound MSW disposal. *Waste Management*, 24, 53-79.
- 222 Heredia, A. (2003). Biophysical and biochemical characteristics of cutin,a plant barrier biopolymer. *Biochimica et Biophysica Acta*, 1620, 1-7.
- 223 Retrieved August 10, 2012, from Engineering Toolbox:
http://www.engineeringtoolbox.com/gas-density-d_158.html
- 224 Wildschut, J., Mahfud, F. H., Venderbosch, R. H., & Heeres, H. J. (2009). Hydrotreatment of Fast Pyrolysis Oil Using Heterogeneous Noble-Metal Catalysts. *Ind. Eng. Chem. Res.*, 48, 10324–10334.
- 225 Dwivedi, P., & Diwan (Eds), P. (2008). *Energycopia- Energy Conservation* (Vol. III). New Delhi: Pentagon Energy Press.
- 226 Chapter 1: Guidelines for National Greenhouse Gas Inventories (2006). Intergovernmental Panel on Climate Change.
- 227 Garg, A., Shukla, P. R., Kapshe, M., & Deepa, M. D. (2004). Indian methane and nitrous oxide emissions and mitigation flexibility. *Atmos Environ*, 38(13), 1965-1977.
- 228 Bulmau, C., Marculescu, C., & Badea, A. (2010). Pyrolysis parameters influencingthe bio-char generation from wooden biomass. *U.P.B. Sci. Bull.*, 72(1).
- 229 Reed, T. B., & Cowdery, C. D. (n.d.). Heat flux requirement for fast pyrolysis and a new method for generating biomass vapour. Retrieved August 1, 2012, from http://web.anl.gov/PCS/acsfuel/preprint%20archive/Files/32_2_DENVER_04-87_0068.pdf
- 230 Kumar, M., & Dwivedi, K. N. (2009). *Jatroph: Ek parichay*.

- Kanpur: Chandrashekhar Azad University of Agriculture and Technology Press.
- 231 Raja, S. A., Kennedy, Z. R., & Pillai, B. C. (2009, October–December). Flash pyrolysis of jatropha oil cake in fluidized bed reactor. *ENREE*, 6(4).
- 232 Ringer, M., Putsche, V., & Scahill, J. (2006). Large-Scale Pyrolysis Oil Production: A Technology Assessment and Economic Analysis. Technical Report, Midwest Research Institute, National Renewable Energy Laboratory.
- 233 Snyder, C. S., Bruulsema, T. W., Jensen, T. L., & Fixen, P. E. (2009). Review of greenhouse gas emissions from crop production systems and fertilizer management effects. *Agric Ecosyst Environ*, 133(3–4), 247–266.
- 234 Garg, A., Shukla, P. R., Bhattacharya, S., & Dadhwal, V. K. (2011). Regional and sectoral assessment of greenhouse gas emissions in India. *Atmos Environ*, 35(15), 2679–2695.
- 235 Rasoul-Amini, S., Montazeri-Najafabady, N., Mobasher, M. A., Hoseini-Alhashemi, S., & Ghasemi, Y. (2011). Chlorella sp.: A new strain with highly saturated fatty acid for biodiesel production in bubble -column photobioreactor. *Applied Energy*, 88, 3354–3356.
- 236 Retrieved August 9, 2012, from Petroleum Conservation Reserach Association: <http://www.pcra.org/English/latest/book/10-Chapter%20-%202010.pdf>
- 237 Kadam, K. L. (2002). Environmental implications of power generation via coal-microalgae cofiring. *Energy*, 27, 905–922.
- 238 Retrieved August 9, 2012, from Centre for Science and Environment, New Delhi: [http://www.cseindia.org/userfiles/57-66%20Aluminium\(1\).pdf](http://www.cseindia.org/userfiles/57-66%20Aluminium(1).pdf)

- 239 Ras, M., Lardon, L., Bruno, S., Bernet, N., & Steyer, J. P. (2011). Experimental study on a coupled process of production and anaerobic digestion of *Chlorella vulgaris*. *Bioresource Technology*, 102, 200-206.
- 240 Xu, L., Brilman, D. W., Withag, J. A., Brem, G., & Kersten, S. (2011). Assessment of a dry and a wet route for the production of biofuels from microalgae: Energy balance analysis. *Bioresource Technology*, 102, 5113-5122.
- 241 (1996-97). Estimation of evaporation losses from water surface - A study of Tawa reservoir. National Institute of Hydrology, Roorkee.
- 242 Engineering Toolbox. Retrieved August 10, 2012, from http://www.engineeringtoolbox.com/human-body-specific-heat-d_393.html
- 243 The Engineering Toolbox. Retrieved August 10, 2012, from http://www.engineeringtoolbox.com/fluids-evaporation-latent-heat-d_147.html
- 244 GasTerra. Retrieved August 1, 2012, from Natural Gas: <http://www.gasterra.com/aardgas/Pages/woordenlijst.aspx>
- 245 The theory behind heat transfer. Retrieved August 21, 2012, from <http://www.distributionchalinox.com/produits/alfa-laval/echangeurs/heat-transfer-brochure.pdf>
- 246 Sierra, E., Acien, F. G., Fernandez, J. M., Garcia, J. L., Gonzalez, C., & Molina, E. (2008). Characterization of a flat plate photobioreactor for the production of microalgae. *Chemical Engineering Journal*, 138, 136-147.
- 247 Sharma, N. K., Tiwari, P. K., & Sood, Y. R. (2012). Solar energy in India: Strategies, policies, perspectives and future potential. *Renewable and Sustainable Energy Reviews*, 16, 933-941.
- 248 Chapter 1: Guidelines for National Greenhouse Gas inventories (2006). Intergovernmental Panel on Climate Change.

- 249 Yang, C., Hua, Q., & Kazuyuki, S. (2000). Energetics and carbon metabolism during growth of microalgal cells under photoautotrophic, mixotrophic, and cyclic light-autotrophic/dark-heterotrophic conditions. *Biochemical Engineering Journal*, 6, 87-102.
- 250 Climate of India. Retrieved August 21, 2012, from Wikipedia: http://en.wikipedia.org/wiki/Climate_of_India
- 251 Iverson, S. J., Lang, S. L., & Cooper, M. H. (2011). Comparision of the Bligh and Dyer and Folch Methods for total lipid determination in a broad range of marine tissue. *Lipids*, 36(11), 1283-1287.
- 252 Lam, M. K., & Lee, K. T. (2012). Immobilization as a feasible method to simplify the separation of microalgae from water for biodiesel production. *Chemical Engineering Journal*.
- 253 Kroger, M., & Muller-Langer, F. (2012). Review on possible algal-biofuel production processes. *Biofuels*, 3(3), 333-349.
- 254 Frank, E. D., Elgowainy, A., Han, J., & Wang, Z. (2012). Life cycle comparison of hydrothermal liquefaction and lipid extraction pathways to renewable diesel from algae. *Mitig Adapt Strateg Glob Change*.
- 255 Brennan, L., & Owende, P. (2009). Biofuels from microalgae—A review of technologies for production, processing, and extractions of biofuels and co-products. *Renewable and sustainable energy reviews*, 14, 557-577.
- 256 Griffiths, M. J., & Harrison, S. T. (2009). Lipid productivity as a key characteristic for choosing algal species for biodiesel production. *Journal of Applied Phycology*, 21, 493–507.
- 257 Jamila, S., Abhilash, P. C., Singh, N., & Sharma, P. N. (2009). *Jatropha curcas: A potential crop for phytoremediation of coal fly ash*. *Journal of Hazardous Materials*, 172, 269–275.

- 258 Jatropha cultivation Indian experience. Retrieved May 18, 2012, from Orchids Asia: <http://www.orchidsasia.com/jatropha/jat001.htm>
- 259 Grameen aloe producer company limited. (2011, April 20). Retrieved May 15, 2012, from Implementation of Soil & Water Conservation Measures on the lands of Jawaja: <http://www.gapcl.co.in/tag/rajasthan/>
- 260 GFE global. (2011, March 9). Retrieved May 15, 2012, from GFE finding success with Jatropha intercropping: <http://biodiesel-jatropha-oil-extraction-equipment.com/intercropping/gfe-finding-success-with-jatropha-inter-cropping/>
- 261 The global authority on nonfood biodiesel crops. Retrieved May 15, 2012, from Jatropha world: http://www.jatrophabiodiesel.org/intercropping.php?_divid=menu
- 262 Yang, C.-Y., Fang, Z., Li, B., & Long, Y.-f. (2012). Review and prospects of Jatropha biodiesel industry in China. *Renewable and Sustainable Energy Reviews*, 16, 2178–2190

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