



BAB V

KESIMPULAN DAN SARAN

5.1 Kesimpulan

1. CRF dengan rasio AA:AM 1:1 mempunyai daya serap air yang paling baik karena menyerap air secara perlahan-lahan
2. Pelepasan urea pada CRF dengan rasio AA:AM 1:1 paling baik karena waktu pelepasan pupuk yang lebih lama.
3. Hasil analisis FTIR menunjukkan bahwa pati sudah ter-*grafted* dengan monomer asam akrilat dan akril amida.

5.2 Saran

1. Perlu dilakukan pembuatan *double-coated Controlled Released Fertilizer* sehingga dapat dibandingkan hasilnya dengan *single coated Controlled Released Fertilizer*.
2. Perlu dicari metode yang lebih baik pada analisis pelepasan urea agar didapatkan hasil yang lebih akurat.



DAFTAR PUSTAKA

Ahmed, J., Tiwari, B., Imam, S., & Rao, M. (2012). *Starch-Based Polymeric Materials and Nanocomposites*. Boca Raton: CRC Press.

America, U.S. Secretary of Commerce on behalf of the United States of. (2016). *National Institute of Standards and Technology*. Dipetik January 2017, dari Urea: <http://webbook.nist.gov/cgi/cbook.cgi?ID=C57136&Units=CAL&Mask=4EF>

Asosiasi Produsen Pupuk Indonesia. (t.thn.). *APPI*. Dipetik Desember 2015, dari http://www.appi.or.id/images/statistic/KEBUTUHAN_PUPUK_UREA_2006_-2015.xls

Chen, L., Xie, Z., Zhuang, X., Chen , X., & Jing , X. (2007). Controlled release of urea encapsulated by starch-g-poly(L-lactide). *Carbohydrate Polymer*, 72, 342-348.

Cui, S. W. (2006). *Food Carbohydrates*. England: Francise and Taylor.

Floris, I. (2014). *Macam-macam Pupuk dan Manfaatnya*. Dipetik Oktober 2015, dari www.imutfloris.com/2014/11/macam-macam-pupuk-manfaat-dan.html

Fortune, T., Juszczak, L., & Palasinski, M. (2001). PROPERTIES OF CORN AND WHEAT STARCH PHOSPHATES OBTAINED FROM GRANULES SEGREGATED ACCORDING TO THEIR SIZE. *ELECTRONIC JOURNAL OF POLISH AGRICULTURAL UNIVERSITY*, 4.

Han , X., Chen, S., & Hu, X. (2007). Controlled-release fertilizer encapsulated by starch/polyvinyl alcohol coating. *DESALINATION*, 240, 21-26.

Harmayani, E., Murdiati, A., & Griyaningsih. (2011). KARAKTERISASI PATI GANYONG (*Canna edulis*) DAN PEMANFAATANNYA SEBAGAI BAHAN PEMBUATAN COOKIES DAN CENDOL. *AGRITECH*, 31.

Helmenstine, A. (2014). *About Education*. Dipetik November 25, 2015, dari Chemical Structures Starting with The Letter U: <http://chemistry.about.com/od/factsstructures/ss/chemical-structures-U-names.htm>

Jamnongkan, T., & Kaewpirom, S. (2010). Controlled-Release Fertilizer Based on Chitosan Hydrogel: Phosphorus Release Kinetics. *SCIENCE JOURNAL*, 1.

Jasim Ahmed, B. K. (2012). *Starch-Based Polymeric Material and Nanocomposites*. London, New York: Taylor&Francis Group.

Koswara, S. (2009). Teknologi Pengolahan Umbi-Umbian.

- Medicine, U. N. (2013). *National Institute of Health*. Dipetik January 2017, dari U.S National Library of Medicine: <https://chem.nlm.nih.gov/chemidplus/rn/10043-52-4>
- Michalovic, M. (2015). *The Macrogalleria*. Dipetik November 2015, dari <http://pslc.ws/macrog/copoly.htm>
- MP Biomedicals, LLC. (2017). *MP BIOMEDICALS*. Dipetik January 2017, dari N,N-METHYLENE-bis-ACRYLAMIDE: <http://www.mpbio.com/product.php?pid=04800172&country=223>
- Piasek, Z., & Urbanski, T. (1962). The Infra-red Absorption Spectrum and Structure of Urea. *Organic Chemistry, 10*.
- Trenkel, M. E. (1997). *Controlled-Release and Stabilized Fertilizers in Agriculture*. Paris : International Fertilizer Industry Association.
- Witono, J. R. (2012). *New Materials by Grafting Acrylic Acid onto Cassava Starch*. University of Groningen.
- Witono, J., Justina, A., & Kuswanto, A. (2011). PENGEMBANGAN BIOMATERIAL BERBASIS GRAFTING VINYL MONOMER PADA PATI SINGKONG.
- Wu , Z., Guo, L., Qin, S., & Li, C. (2011). Encapsulation of *R. planticola* Rs-2 from alginate-starch-bentonite and its controlled release and swelling behavior under simulated soil conditions. *J Ind Microbiol Biotechnol*, 39, 317-327.
- Wu, L., & Liu, M. (2007). Preparation and properties of chitosan-coated NPK compound fertilizer with controlled-release and water-retention. *Carbohydrate Polymers*, 72, 240-247.
- Wu, L., Liu, M., & Liang, R. (2006). Preparation and properties of a double-coated slow-release NPK compound fertilizer with superabsorbent and water-retention. *Bioresource Technology*, 99, 547-554.
- Yavus, H., & Cehyun, B. (2003). Preparation and Biogradation of Starch/Polycaprolactone Film. *Journal of Polymers and the Environment*, 11, 107-113.
- Zhang, L.-M., Yang, C., & Yan, L. (2005). Perspectives on: Strategies to Fabricate Starch-based Hydrogels with Potential Biomedical Applications. *Journal of Bioactive and Compatible Polymers*, 20.