

## REFERENCES

- Beynum, G.M.A., & Roels J.A. (1985). *Starch Conversion Technology*. New York: Marcel Dekker. p.326.
- Bogracheva T., Morris V.J., Ring S.G., & Hedley C.L. (1998). The granular structure of C-type pea starch and its role in gelatinization. *Bio. Polym.* 45:323-332.
- Bradbury A.G.W., & Bello A.B. (1993). Determination of molecular size distribution of starch and debranched starch by a single procedure using high-performance-size-exclusion chromatography. *Cereal Chem.*,70:543-547.
- Buléon A., Colonna P., Planchot V., & Ball S. (1998). Starch granules: Structure and bio-synthesis. *Int. J. Biol. Macromol.*,23:85-112.
- Christoph Heß., Hartmann B., Lechner M.D., Nierling W., Seidel C., & Kulicke W.M. (2007). Influence of Soluble Polymer Residues in Crosslinked Carboxymethyl Starch on some Physical Properties of its Hydrogels. *Starch/Stärke*,59:425-429.
- Cairns P., Bogracheva T.Y., Ring S.G., Hedley C.L., & Morris V.J. (1997). Determination of polymorphic composition of smooth pea starch. *Carbohydr. Polym.*,32:275-282.
- Code of federal regulations. (2008). Title 21: Food and Drug., Chapter 1-Food and Drug Administration. Washington: The Office of the Federal Register. National Archives and Records Administration.
- Dichloroacetic acid. (2008). MSDS - Material Safety Data Sheet. Texas: Sciencelab.
- Felton G.E., & Schopmeyer H.H. (1940). Thick bodied starch and method of making. US patent 2,328,537.
- French D. (1984). Organization of Starch Granules. *In Starch: Chemistry and Technology*, 2<sup>nd</sup>ed, Whistler R.L., BeMiller J.N. and Paschall E.F., eds., Florida: Academic Press. p.184-242.
- Gidley M.J. (1987). Factors affecting the crystalline type (A-C) of native starches and model compounds: a rationalisation of the observed effects in term pf polymorphic structure. *Carbohydr. Res.*,161:301-304.

- Giovanna G., Sanabria R., & Finardi-Filho F. (2009). Physical–chemical and functional properties of maca root starch (*Lepidium meyenii* Walpers). *Food Chem.*,114:492–498.
- Hofreiter B.T. (1986). Miscellaneous modifications. *In Modified Starches: Properties and Uses*, Chapter 11, Wurzburg O.B., ed. Florida: CRC Press. p.179-196.
- Hoover R., & Sosulski F.W. (1991). Composition, Structure, Functionality and Chemical modification of legume starches: A review. *Can. J. Physio. Pharmacol.*, 69(1):79-92.
- Juliano B.O. (1971). A simplified assay for milled-rice amylose. *Cereal Sci. Today*, 16:334-340.
- Jung S.H., Shin G.J., & Choi C.U. (1991). Comparison of physicochemical properties of corn, sweet potato, potato, wheat and mung bean starches. *Han'guk Sikk'um Kwahakhoechi*,23:272–275.
- Kasemsuwan T., Jane J., Chen Y., Lee L.F., McPherson E., Wong K.S., & Radosavljevic M. (1999). Effects of Amylopectin Branch Chain Length and Amylose Content on the Gelatinization and Pasting Properties of Starch. *Cereal Chem.*,76(5):629-637.
- Kerr R.W. (1950). Chemistry and Industry of Starch.. *In Starch: Chemistry and Technology*, 2<sup>nd</sup>ed, Whistler R.L., BeMiller J.N. and Paschall E.F., eds., Florida: Academic Press. p.791.
- Kirby K.W. (1986). Textile industry. *In Modified Starches: Properties and Uses*, Wurzburg O.B., ed. Florida: CRC Press. p.229-252.
- Kittipongpatana O.S., Sirithunyalug J., & Laenger R. (2006). Preparation and physico-chemical properties of carboxymethyl mungbean starches. *Carbohydr. Polym.*,62:105-112.
- Kittipongpatana O.S., Burapadaja S., & Kittipongpatana N. (2008). Development of Pharmaceutical Gel Base Containing Sodium Carboxymethyl Mungbean starch. *CMU. J. Nat. Sci.*,7(1):23-32.
- Kumar L., & Verma R. (2010). In-Vitro Evaluation of prepared Topical Gel of Nimesulide. *J. Chem. Pharm. Res.*, 2(1): 273-279.
- Kumar L., & Verma R. (2010). In-Vitro Evaluation of Topical Gel prepared using natural polymer. *Int. J. Drug Deliv.*, 2: 58-63.

- Lechner M.D., Kulicke W.M., Christoph Heß., Seidel C., & Hartmann B. (2005). Cross-linked, Long-time stable carboxymethyl starch as an absorbent for water, use of same and method for manufacture of same. US Patent 2005/0092964 A1.
- Lee J.S., Kumar R.N., Rozman H.D., & Azemi B.M.N. (2005). Pasting, swelling and solubility properties of UV initiated starch-graft-poly(AA). *Food Chem.*, 91:203–211.
- Oates C.G. (1997). Toward an Understanding of Starch Granule Structure and Hydrolysis. *Food Sci. Technol. Int.*,8:375-382.
- Ohwada N., Ishibashi K., Hironaka K., & Yamamoto K. (2003). Physiochemical Properties of Mungbean Starch. *J. Appl. Glycosci.*,50:481-485.
- Pomeranz Y. (1985). *Functional properties of food components*, New York: Academic Press.
- Rutenberg M.W. and Solarek D. (1984). Starch derivatives: technology and uses. *In Starch: Chemistry and Technology*, 2<sup>nd</sup>ed., Whistler R.L., BeMiller J.N., Paschall E.F., eds. Florida: Academic Press. p.311-388.
- Salomonsson A.C., & Sundberg B. (1994). Amylose content and chain profile of amylopectin from normal, high amylose and waxy barleys. *Starch/Stärke*, 46(9):325-328.
- Sagarin E. (Ed.). (1957). *Cosmetics: Science and technology*. New York: Interscience Publishers, Inc.
- Seib P.A., & Woo, K.S. (1999). Food grade starch resistant to  $\alpha$ -amylase and method of preparing the same. US Patent 5,855,946.
- Siedel C., Kulicke W.M., Christoph Heß., Hartmann B., Lechner M.D., & Lazik W. (2004). Synthesis and characterization of cross-linked carboxymethyl potato starch ether gels. *Starch/Stärke*,56:157-166.
- Siedel C., & Kulicke W.M. (2004). *Carboxymethyl Starch Gels for Ultrasonic Examinations*. Institute of Technical and Macromolecular Chemistry. University of Hamburg, Germany.
- Smith R.G., Vanterpool A., & H. Jean H.K. (1969). Dimethyl sulfoxide as a solvent in the Williamson ether synthesis. *Can. J. Chem.*, 47(11): 2015–2019.
- Swinkles J.M. (1985). Composition and properties of commercial native starches. *Starch/Stärke*,37:1.

- Stute R. (1990). Properties and Applications of pea starches, Part 1: Properties. *Starch/Stärke*, 42:178-184.
- Thomssen B.S. (1947). *Modern cosmetics* (3<sup>rd</sup>ed.). New York: Drug & Cosmetic Industry.
- USP 32/NF 27 - The United States Pharmacopeias 32<sup>nd</sup>–The National Formulary 27<sup>th</sup>. (2010). <921> Water Determination. Rockville: United States Pharmacopeias Convention.
- Vollhardt K., Peter C., & Neil E. Schore (2007). *Organic Chemistry: Structure and Function*. New York: W.H. Freeman and Company.
- Whistler R.L. (1965). Starch its past and future. *In Starch:Chemistry and Technology*, Vol 1, Whistler R.L., Paschall E.F., eds. New York: Academic Press. p.1-8.
- Wilkinson J.B., & Moore, R.J. (Eds.). (1982). *Harry's cosmetology*, 7<sup>th</sup>ed., New York: Chemical Publishing.
- Winter R. (2005). *A Consumers dictionary of cosmetic ingredients*, 6<sup>th</sup>ed., New York: Three Rivers Press.
- Zuanetti G. (2000). *Nimesulide gel*. Milano: Arti Grafiche M. Bazzi S.p.A.

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### List of Co-publications Journals

1. Tehkhunmag T., Kittipongpatana N., Malisuwan S., Wattanageebood S. & Kittipongpatana O.S. (2008) Preparation, Physicochemical and Film-Forming Properties of Carboxymethyl/Hydroxypropyl Dual-Modified Tapioca Starches. CMU. J. Nat. Sci., 7(2):219-230.

**List of Oral presentations**

1. Wattanageebood S. (2010). Effect of Cross-linking on Alcohol Tolerance of Carboxymethyl Mungbean Starch and Application as Gelling Agent. The 1<sup>st</sup> Polymer Conference of Thailand (PCT-1), *Part: Polymers for Health and Medicine*. October 7-8<sup>th</sup>, 2010, Convention Center, Chulabhorn Research Institute, Bangkok, Thailand.
2. Wattanageebood S. Kittipongpatana N., Kammprasert K., & Kittipongpatana O.S. (2010). Use of Carboxymethyl Mungbean Starch as Gelling agent in Commercial Products. TRF-Master Research Congress V. March 30<sup>th</sup> – April 1<sup>st</sup>, 2010, Oriental Palm I, Jomtien Palm Beach & Resort Hotel, Chonburi, Thailand. (2009-2010), she received scholarship from TRF through Thailand Research Fund–Master Research Grants (TRF–MAG ), in collaboration with Bangkok Lab and Cosmetics Co., Ltd. to financially support for thesis research. She also presented



