

REFERENCES

- [1] LeGeros, R. Z., In Biological and synthetic apatites; Brown, P. W.; Constantz, B., Eds; Hydroxyapatite and related materials, **1994**, pp. 3-28.
- [2] Park, J. B., In Biomaterials science and engineering. Plenum Press, New York, **1984**, pp. 274-299.
- [3] Murugan, R.; Ramakrishna, S., In Nanostructured biomaterials; Nalwa, H. S., Ed; Encyclopedia of nanoscience and nanotechnology, American Scientific Publishers, California, **2004**, pp. 595-613
- [4] Currey, J. D., In Bones: structure and mechanics. Princeton University Press, New Jersey, **2002**, pp. 75-85.
- [5] Lowenstam, H. A.; Weiner, S., In On biomineralization. Oxford University Press, New York, **1989**, pp. 207-251.
- [6] McConnell, D.; The crystal structure of bone. *Clin. Orthop. Rel. Res.*, **1962**, 23, 253-68.
- [7] Vecchio, K. S.; Zhang, X.; Massie, J. B.; Wang, M.; Kim, C. W., Conversion of bulk seashells to biocompatible hydroxyapatite for bone implants. *Acta Biomater.*, **2007**, 3, 910-918.
- [8] Lakes, R., Materials with structural hierarchy. *Nature*, **1993**, 361, 511-515.
- [9] Hartgerink, J. D.; Beniash, E.; Stupp, S. I., Self-assembly and mineralization of peptide-amphiphile nanofibers. *Science.*, **2001**, 294, 1684–1688.

- [10] Hollinger, J. O.; Winn, S.; Bonadio, J., Options for tissue engineering to address challenges of the ageing skeleton. *Tissue Eng.*, **2000**, 6(4), 341–350.
- [11] Dickson, G. B. F.; Marsh, D.; Harkin-Jones E.; Little, U.; McCaigue, M., Orthopaedic tissue engineering and bone regeneration. *Technol. Health Care.*, **2007**, 15, 57–67.
- [12] Reid, R. L., Hernia through an iliac bone graft donor site. A case report. *J. Bone Joint Surg. Am.*, **1968**, 50, 757–760.
- [13] ApaPore® Impaction grafting hip study (AIGHS) [Online]. Online at: http://www.bioportfolio.com/news/ApaTech%20Ltd_1.htm (15 March 2005).
- [14] Thailand's trade balance was deficit of more than 5 billion [Online]. Online at: <http://www.manager.co.th/QOL/ViewNews.aspx?NewsID=9570000088497&Html=1&TabID=3&> (4 August 2014).
- [15] Yeong, K. C. B.; Wang, J.; Ng, S. C., Mechanochemical synthesis of nanocrystalline hydroxyapatite from CaO and CaHPO₄. *Biomaterials.*, **2001**, 22, 2705-2712.
- [16] Abdeslam, H. E. B. B.; Ginebra, M. P.; Vert, M.; Boudeville, P., Wet or dry mechanochemical synthesis of calcium phosphates? Influence of the water content on DCPD–CaO reaction kinetics. *Acta Biomater.*, **2008**, 4, 378–386.
- [17] Guo, D.; Xu, K.; Han, Y., Influence of cooling modes on purity of solid-state synthesized tetracalcium phosphate. *Mat. Sci. Eng. B.*, **2005**, 116, 175–181.
- [18] Farzadi, A.; Solati-Hashjin, M.; Bakhshi, F.; Aminian, A., Synthesis and characterization of hydroxyapatite/ β -tricalcium phosphate nanocomposites using microwave irradiation. *Ceram. Int.*, **2011**, 37, 65-71.

- [19] Raynaud, S.; Champion, E.; Bernache-Assollant, D.; Thomas, P., Calcium phosphate apatites with variable Ca/P atomic ratio I. Synthesis, characterisation and thermal stability of powders. *Biomaterials.*, **2002**, 23, 1065-1072.
- [20] Sargin, Y.; Kizilyalli, M.; Telli, C.; Guler, H., A New Method for the Solid-State Synthesis of Tetracalcium Phosphate, a Dental Cement: X-Ray Powder Diffraction and IR Studies. *J. Eur. Ceram. Soc.*, **1997**, 17, 963-970.
- [21] Laurent, G.; Didier, M., Bone ingrowth into two porous ceramics with different pore size : An experimental study. *Acta Orthop. Belg.*, **2004**, 70, 598-603.
- [22] Driessens, F. C. M.; Ramselaar, M. M. A.; Schaeken, Stols, A. L. H.; Mullem, P. J.; Wijn, J. R., Chemical reactions of calcium phosphate implants after implantation in vivo. *J. Mater. Sci. Mater. Med.*, **1992**, 3, 413-417.
- [23] Brandt, J.; Henning, S.; Michler, G.; Hein, W.; Bernstein, A.; Schulz, M., Nanocrystalline hydroxyapatite for bone repair: an animal study. *J. Mater. Sci. Mater. Med.*, **2010**, 21, 284-294.
- [24] Benhayoune, H.; Jallot, E.; Laquerriere, P.; Balossier, G.; Bonhomme, P.; Frayssinet, P., Integration of dense HA rods into cortical bone. *Biomaterials.*, **2000**, 21, 235-242.
- [25] Punyanitya, S.; Chaiwan, B.; Sinsuwong, N.; Thiansem, S.; Raksujarit, A.; Raksanti A.; Koonawoot, R., Chotika Bone 2 : Animal testing in rats and rabbits. *Neurological Surgery.*, **2012**, 3, 5-12.
- [26] Rezwan, K.; Chen, Q. Z.; Blaker, J. J.; Boccaccini, A. R., Biodegradable and bioactive porous polymer/inorganic composite scaffolds for bone tissue engineering. *Biomaterials.*, **2006**, 27, 3413-3431.

- [27] Elliott, J. C.; Mackie, P. E.; Young, R. A., Monoclinic hydroxyapatite. *Science.*, **1973**, *180*, 1055-1057.
- [28] Elliott, J. C., In Structure and chemistry of the apatites and other calcium orthophosphates. Studies in inorganic chemistry. Elsevier, Amsterdam, **1994**, pp. 389.
- [29] Posner, A. S.; Betts, F., Synthetic amorphous calcium phosphate and its relation to bone mineral structure. *Acc. Chem. Res.*, **1975**, *8*, 273-281.
- [30] Treboux, G.; Layrolle, P.; Kanzaki, N.; Onuma, K.; Ito, A., Existence of Posner's cluster in vacuum. *J. Phys. Chem. A.*, **2000**, *104*, 5111-5114.
- [31] Onuma, K.; Ito, A., Cluster growth model for hydroxyapatite. *Chemistry of Materials.*, **1998**, *10*, 3346-3351.
- [32] Tanaka, Y.; Iwasaki, T.; Nakamura M.; Nagai, A.; Katayama, K.; Yamashita, K., Polarization and microstructural effects of ceramic hydroxyapatite electrets. *J. Appl. Phys.*, **2010**, *107*(1), 1410.
- [33] Tofail, S. A. M.; Baldisserri, C.; Haverty, D.; McMonagle, J. B.; Erhart, J., Pyroelectric surface charge in hydroxyapatite ceramics. *J. Appl. Phys.*, **2009**, *106*(10), 1-3.
- [34] Ratner, B. D.; Hoffman, A. S.; Schosen, F. J.; Lemons, J. E., In Biomaterials Science. Academic Press, New York, **1996**, pp. 82.
- [35] Pasteris, J. D.; Wopenka, B.; Freeman, J. J.; Rogers, K.; Valsami-Jones, E.; Van der Houwen, J. A. M.; Silva, M. J., Lack of OH in nanocrystalline apatite as a function of degree of atomic order: Implications for bone and biomaterials. *Biomaterials.*, **2004**, *2*, 229-238.

- [36] Sun, J.; Tsuang, Y.; Chang, W. H.; Li, H.; Liu, H.; Lin, F., Effect of hydroxyapatite particle size on myoblasts and fibroblasts. *Biomaterials.*, **1997**, *18*, 683-690.
- [37] Kijima, T.; Tsutsumi, M., Preparation and thermal properties of dense polycrystalline oxyhydroxyapatite. *J. Am. Ceram. Soc.*, **1979**, *62*, 455-460.
- [38] Vallet-Regi, M.; Gonzalez-Galbet, J. M., Calcium phosphates as substitution of bone tissues. *Prog. Solid State Chem.*, **2004**, *32*, 1-31.
- [39] Hing, K. A., In Assessment of porous hydroxyapatite for bone replacement. PhD Thesis, University of London, **1995**.
- [40] Newsley, H., Crystallographic and morphological study of carbonate-apatite, *Chem.*, **1963**, *95*, 270.
- [41] LeGeros, R. Z., Effect of carbonate on the lattice parameters of apatite. *Nature.*, **1965**, *206*, 403-404.
- [42] Barralet, J. E.; Best, S. M.; Bonfield, W., Carbonate substitution in precipitated hydroxyapatite: An investigation into the effects of reaction temperature and bicarbonate Ion concentration. *J. Biomed. Mater. Res.*, **1998**, *41*, 79-86.
- [43] Jha, L.; Best, S. M.; Knowles, J.; Rehman, I.; Santos, J.; Bonfield, W., Preparation and characterisation of fluoride-substituted apatites. *J. Mater. Sci. Mater. Med.*, **1997**, *8*, 185-191.
- [44] Gibson, I. R.; Best, S. M.; Bonfield, W., Chemical characterization of silicon-substituted hydroxyapatite. *J. Biomed. Mater. Res.*, **1999**, *44*, 422-428.
- [45] McConell, D., In Apatite: its crystal chemistry, mineralogy, utilization, and biologic occurrence. Springer Verlag, Berlin, **1973**.

- [46] Yang, X.; Wang, Z., Synthesis of biphasic ceramics of hydroxyapatite and beta-tricalcium phosphate with controlled phase content. *J. Mater. Chem.*, **1998**, 8, 2233-2237.
- [47] Tadic, D.; Peters, F.; Epple, M., Continuous synthesis of amorphous carbonated apatites. *Biomaterials.*, **2002**, 23, 2555-2559.
- [48] Jinawath, S.; Polchai, D.; Yoshimura, M., Low-temperature, hydrothermal transformation of aragonite to hydroxyapatite. *Mat. Sci. Eng. C.*, **2002**, 22, 35-39.
- [49] Chai, C. S.; Gross, K. A.; Nissan, B. B., Critical ageing of hydroxyapatite sol-gel solutions. *Biomaterials.*, **1998**, 19, 2291-2296.
- [50] Nasari –Tabrizi, B.; Honarmandi, P.; Ebrahimi-Kahrizsangi, R.; Honarmandi, P., Synthesis of nanosize single-crystal hydroxyapatite via mechanochemical method. *Material Letter.* **2009**, 63, 543-546.
- [51] Rahaman, M. N., In *Ceramic Processing And Sintering*. Marcel Dekker Inc. New York, **2003**, pp. 328-330.
- [52] ASTM F1185–88(03), Standard Specification for Composition of Ceramic Hydroxylapatite for Surgical Implants, **1993**, pp. 434-435.
- [53] Kingery, W. D.; Bowen, H. K.; Uhlmann, D. R., In *Introduction to Ceramics*. Wiley-Interscience, New York, **1976**, pp. 470.
- [54] Reed, J. S., In *Principles of Ceramic Processing*, John Wiley & Sons, New York, **1988**, pp. 449.
- [55] Ashby, M. F., A first report on sintering diagrams. *Acta Metall.*, **1974**, 22, 275-289.

- [56] Rahaman, M. N., In Ceramic Processing And Sintering. Marcel Dekker, Inc., New York, **2003**, pp. 783-788.
- [57] Ratner, B. D.; Hoffman, A. S.; Schosen, F. J.; Lemons, J. E., In Biomaterials Science, Academic Press, New York, **1996**, pp. 82.
- [58] De Groot, K., Effect of Porosity and Physicochemical Properties on the Stability, Resorption and Strength of Calcium Phosphate Ceramics. *Ann. N. Y. Acad. Sci.*, **1988**, 523, 227-233.
- [59] Temboonkiat, K., In Calcium carbonate, Newsletter, Defence Pharmaceutical Factory, Quarterly 2, January-March, **2009**.
- [60] Nobes, R. H.; Akhmatskaya, E. V.; Milman, V.; White, J. A.; Winkler B.; Pickard C. J., An ab initio study of hydrogarnets. *Am. Mineral.*, **2000**, 85, 1706-1715.
- [61] Nriagu, J. O., In Phosphate Minerals, Springer-Verlag, New York, **1984**, pp. 318-329.
- [62] Anderson, J. M.; Schoen F. J. In Biomaterials science: an introduction to materials in medicine. Elsevier Academic Press, California, **2004**, pp. 360-362.
- [63] International Standards Organization. In vitro method of test for cytotoxicity of medical and dental materials and devices. Geneva, Switzerland, **1992**, pp. 10993-10995.
- [64] Neo, M.; Kotani, S.; Fujita, Y.; Nakamura, T.; Yamamuro, T.; Bando, Y.; Ohtsuki, C.; Kokubo, T., Differences in ceramic-bone interface between surface-active ceramics and resorbable ceramics: a study by scanning and transmission electron microscopy. *J. Biomed. Mater. Res.*, **1992**, 26, 255-267.

- [65] ASTM F981-04, Standard Practice for Assessment of Compatibility of Biomaterials for Surgical Implants with Respect to Effect of Materials on Muscle and Bone, **2010**, pp. 405-409.
- [66] ASTM F1185-03, Standard Specification for Composition of Hydroxylapatite for Surgical Implants, **2009**, pp. 476.
- [67] JCPDS-ICDD Card no. 85-1108, International center for diffraction data. Newtown Square, PA, **2000**.
- [68] JCPDS-ICDD Card no. 09-432. International center for diffraction data. Newtown Square, PA, **2000**.
- [69] JCPDS-ICDD Card no. 09-169. International center for diffraction data. Newtown Square, PA, **2000**.
- [70] JCPDS-ICDD Card no. 37-1497. International center for diffraction data. Newtown Square, PA, **2000**.
- [71] Victoria, E. C.; Gnanam, F. D., Synthesis and characterization of biphasic calcium phosphate. *Trends Biomater. Artif. Organs.*, **2002**, *16*, 12-14.
- [72] Yang, X.; Wang, Z., Synthesis of biphasic ceramics of hydroxyapatite and β -tricalcium phosphate with controlled phase content and porosity. *J. Mater. Chem.*, **1998**, *8*, 2233-2237.
- [73] Callut, S.; Knowless, J. C., Correlation between structure and compression strength in reticulated glass-reinforced hydroxyapatite foam. *J. Mater. Sci. Mater. Med.*, **2000**, *13*, 485-489.

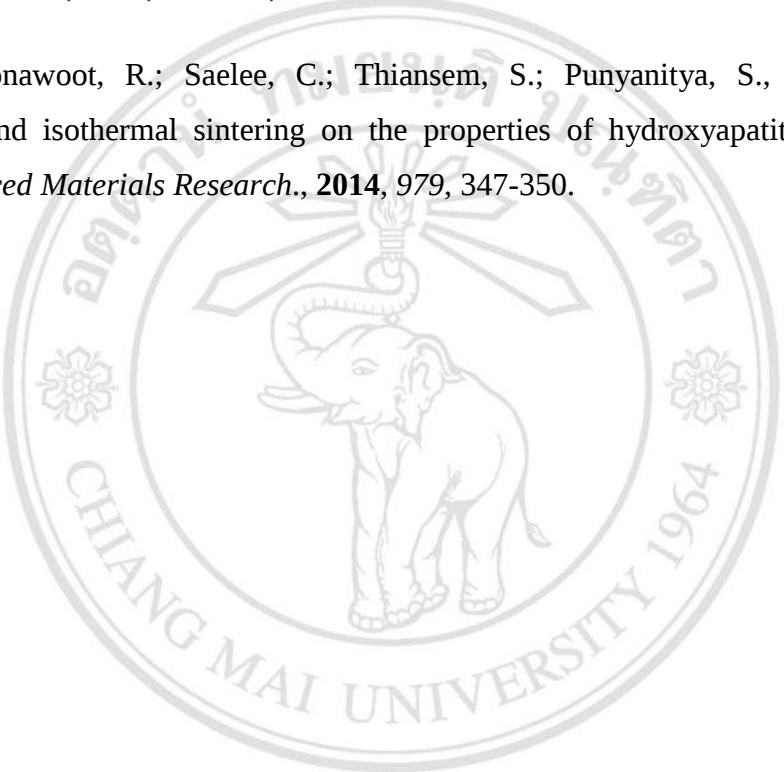
- [74] Ryan, W.; Radford, C., In *Whitewares: Production, Testing and Quality Control, Including Materials, Body Formulations and Manufacturing Processes*. The Institute of Materials, Carlton House Terrace, London, **1997**, pp. 224-233.
- [75] Callister, W. D., In *Fundamentals of Material Science and Engineering*. Willey, New York, **2001**.
- [76] Dewith, G.; Wagemans, H. H. M., Ball-on-ring test revisited, *J. Am. Ceram. Soc.*, **1989**, 72, 1538-1541.
- [77] Department of Health Education and Welfare. The Guide for Care and Use of Laboratory Animals. Publication (No. 78-23), Available from Superintendent of Documents, U.S. Government Printing Office, Washington, 20402, **1978**.
- [78] ASTM F1408-97, Standard Practice for Subcutaneous Screening Test for Implant Materials, **1997**, pp. 694-697.
- [79] ASTM F763-04, Standard Practice for Short-Term Screening of Implant Materials, **2004**, pp. 363-366.
- [80] Ryan, W.; Radford C., In *Whitewares: Production, Testing and Quality Control, Including Materials, Body Formulations and Manufacturing Processes*, The Institute of Materials, Carlton House Terrace, London, **1997**, pp. 299-302.
- [81] Taylor, J. K., In *Statistical techniques for data analysis*. Lewis publishers, Inc., London, **1990**, pp. 42-67.
- [82] Lideed, D. R., In *Handbook of Chemistry and Physics*. CRC Press, Boston, **1992**, pp. 4-39.

- [83] Rey, C., In Calcium phosphate for medical applications; Amiad, Z., Ed; Calcium phosphate in biological and industrial system, Kluwer Academic Publishers, Boston, **1998**, pp. 217-239.
- [84] LeGeros, R. Z., Effect of carbonate on the lattice parameter of apatite. *Nature.*, **1965**, 206, 403-404.
- [85] Hillert, M., Theory of normal and abnormal grain growth. *Acta. Metall.*, **1965**, 13, 227-238.
- [86] Wang, M., In Biomaterials and tissue engineering. Springer Verlag Heidelberg, Berlin, **2004**, pp. 1-82.
- [87] Jarcho, M., Calcium phosphate ceramics as hard tissue prosthetics. *Clin. Orthop. Rel. Res.*, **1981**, 157, 259-278.
- [88] TarDei, C.; Grigore, F.; Pasuk, I.; Stoleriu, S., The study of Mg^{2+} / Ca^{2+} of β -tricalcium phosphate. *J. optoelectronics adv. Mater.*, **2006**, 8, 568-571.

List of Publications

1. Koonawoot, R.; Thiansem, S.; Punyanitya S.; Raksujarit A.; Laosatirawong S.; Pompimon, W., Synthesis of Hydroxyapatite Powder from Mollusc shell. *Advanced Materials Research.*, **2011**, 311-313, 1621-1624.

2. Koonawoot, R.; Saelee, C.; Thiansem, S.; Punyanitya, S., Influence of composition and isothermal sintering on the properties of hydroxyapatite bioceramic bodies. *Advanced Materials Research.*, **2014**, 979, 347-350.



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