

เอกสารอ้างอิง

- บุญญานาถ นาถวงษ์. 2556. การเพิ่มดีเอ็นเอ, ศูนย์พันธุวิศวกรรมและเทคโนโลยีชีวภาพแห่งชาติ (ไบโอเทค) สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ (สวทช). (ระบบออนไลน์). แหล่งข้อมูล: www.biotech.or.th/biosafety/download/3_dna_amplification.pdf. (18 สิงหาคม 2556).
- พิชัย คงพิทักษ์. 2551. การเลี้ยงผึ้งเพื่อให้ได้ประโยชน์จากผึ้ง. หน้า 15-25. ใน: คณะเกษตรศาสตร์ มหาวิทยาลัยเชียงใหม่, (ผู้รวบรวม), เกษตรหมู่เฮ เล่ม 9. งานประชาสัมพันธ์ และ บริการวิชาการ คณะเกษตรศาสตร์ มหาวิทยาลัยเชียงใหม่.
- ภาณุวรรณ จันทวรรณกูร. 2553. โรคที่เกิดจากจุลินทรีย์ในผึ้ง. พิมพ์ครั้งที่ 1. แม็กซ์ปริ้นติ้ง. เชียงใหม่. 147 น.
- สิริวัฒน์ วงษ์ศิริ. 2532. ชีวิตของผึ้ง. พิมพ์ครั้งที่ 2. แสงศิลป์การพิมพ์. กรุงเทพฯ. 184 น.
- สิริวัฒน์ วงษ์ศิริ สุริรัตน์ เตียววณิชย์ และอรวรรณ ดวงภักดี. 2551. ผึ้งและน้ำผึ้ง. พิมพ์ครั้งที่ 1. สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย, กรุงเทพมหานคร. 95 น.
- สิริวัฒน์ วงษ์ศิริ และสุริรัตน์ เตียววณิชย์. 2555. ชีวิตของผึ้ง. พิมพ์ครั้งที่ 3. สำนักพิมพ์แห่งจุฬาลงกรณ์มหาวิทยาลัย, กรุงเทพฯ. 341 น.
- หลวงบุเรศบำรุงการ. 2524. น้ำผึ้งและประโยชน์ของผึ้งกับชีวิตและงานของแมลงผึ้ง. ครั้งที่ 2. สำนักพิมพ์แพร่พิทยา, กรุงเทพมหานคร. 69 น.
- Alaux, C., J. L. Brunet, C. Dussaubat, F. Mondet, S. Tchamitchan, M. Cousin, J. Brillard, A. Baldy, L. P. Belzunces and Y. L. Conte1. 2010. Interactions between nosema microspores and a neonicotinoid weaken honeybees (*Apis mellifera*). *Environ. Microbiol.* 12: 774–782.
- Aronstein, K. A. and K. D. Murray. 2010. Chalkbrood disease in honey bees. *J. Invertebr. Pat.* 103: 520–529.
- Aydin, L., E. Gulegen, I. Cakmaki, O. G. Girisgin and W. Harrington. 2006. Relation between nosema and chalkbrood disease and its implication for an apiary management model. *Bull. Vet. Inst. Pulawy.* 50: 471-475.

- Bailey, L. 1953. Effect of fumagillin upon *Nosema apis* (Zander). *Nature*. 171: 212–213.
- Botias, C., R. Martin-Hernandez, L. Barrios, E. Garrido-Bailon, A. Nanetti, A. Meana and M. Higes. 2011. *Nosema* spp. parasitization decreases the effectiveness of acaricide strips (Apivar[®]) in treating varroosis of honey bee (*Apis mellifera iberiensis*) colonies. *Environ. Microbiol. Rep.* 4: 57–65.
- Bourgeois, A. L., T. E. Rinderer, L. D. Beaman and R. G. Danka. 2010. Genetic detection and quantification of *Nosema apis* and *N. ceranae* in the honey bee. *J. Invertebr. Pat.* 103: 53–58.
- Campbell, J., B. Kessler, C. Mayack and D. Naug. 2010. Behavioral fever in infected honeybees: parasitic manipulation or coincidental benefit. *Parasitology*. 137: 1487– 1491.
- CAPA, Canadian association of professional apiculturists. 2012. *Nosema* disease – diagnosis and control. Agriculture and Agri-Food Canada, Beaverlodge. 4 pp.
- Canada Agriculture and Food Museum. 2014. The beekeeper. (Online). Available: <http://bees.techno-science.ca/english/bees/the-beekeeper/nosema.php> (September 19, 2014)
- Chaimanee, V., N. Warrit and P. Chantawannakul. 2010. Infections of *Nosema ceranae* in four different honeybee species. *J. Invertebr. Pathol.* 105: 207-210.
- Chen, Y., J. D. Evans, I. B. Smith and J. S. Pettis. 2008. *Nosema ceranae* is a long-present and wide-spread microsporidean infection of the European honey bee (*Apis mellifera*) in the United States. *J. Invertebr. Pathol.* 97: 186–188.
- Chen, Y. P., J. D. Evans, C. Murphy, R. Gutell, M. Zuker, R. D. Gundersen and J. S. Pettis. 2009. Morphological molecular and phylogenetic characterization of *Nosema ceranae* a microsporidian parasite isolated from the European honey bee, *Apis mellifera*. *Euk. Microbiol. J.* 56: 142–147.
- Chen, Y. P., J. S. Pettis, Y. Zhao, X. Liu, L. J. Tallon, L. D. Sadzewicz, R. Li, H. Zheng, S. Huang, X. Zhang, M. C. Hamilton, S. F. Pernal, A. P. Melathopoulos, X. Yan and J. D. Evans. 2013. Genome sequencing and comparative genomics of honey bee microsporidia, *N. apis* reveal novel insights into host-parasite interactions. *BMC. Genomics*. 14: 451.

- Cushman, A. David. 2006. *Nosema apis* a parasite of honey bees. (online). honey bees. Available: <http://www.dave-cushman.net/bee/nosema.html>. (August 16, 2012).
- Eckert, C. D., M. L. Winston and R. C. Ydenberg. 1994. The relationship between population size, amount of brood and individual foraging behaviour in the honey bee, *Apis mellifera* L. *Oecologia*. 97: 248–255.
- Fallon, J. P., E. P. Reeves and K. Kavanagh. 2011. The *Aspergillus fumigatus* toxin fumagillin suppresses the immune response of *Galleria mellonella* larvae by inhibiting the action of haemocytes. *Microbiology*. 157: 1481–1488.
- Fenoy, S., C. Rueda, M. Higes, R. Martin-Hernandez and C. Aguila. 2009. High-level resistance of *Nosema ceranae*, a parasite of the honeybee, to temperature and desiccation. *Appl. Environ. Microbiol.* 75: 6886–6889.
- Fernandez, J. M., F. Puerta, M. Cousinou, R. Dios-Palomares, F. Campano and L. Redondo. 2012. Asymptomatic presence of *Nosema* spp. in Spanish commercial apiaries. *J. Invertebr. Pathol.* 111: 106-110.
- Forsgren, E. and I. Fries. 2010. Comparative virulence of *Nosema ceranae* and *Nosema apis* in individual European honey bees. *Vet. Parasitol.* 170: 212-217.
- Fries, I., G. Ekbohm and E. Villumstad. 1984. *Nosema apis*, sampling techniques and honey yield. *J. Api. Res.* 23: 102-105.
- Fries, I., F. Feng, A. Da Silva, S. B. Slemenda and N. J. Pieniazek. 1996. *Nosema ceranae* sp. (Microspora, Nosematidae), morphological and molecular characterization of a microsporidian parasite of the Asian honey bee *Apis cerana* (Hymenoptera, Apidae). *Eur. J. Protistol.* 32: 356-365.
- Fries, I., R. Martin-Hernandez, A. Meana, P. Palencia and M. Higes. 2006. Natural infections of *Nosema ceranae* in European honey bees. *J. Api. Res.* 45: 230–233.
- Fries, I. 2010. *Nosema ceranae* in European honey bees (*Apis mellifera*). *J. Invertebr. Pathol.* 103: 73–79.
- Gajger, T., O. Vugrek, D. Grilec and Z. Petrinc. 2010. Prevalence and distribution of *Nosema ceranae* in Croatian honeybee colonies. *Veterinarni. Medicina.* 55: 457–462.

- Geoff, W., D. Roger and D. Shutler. 2010. Management of nosema in honey bees: part1: IPM and Monitoring. (Online). Department of entomology apiculture program. Available: <http://www.apiculture.ento.vt.edu/nosema.html>. (11 September 2012).
- Gochnauer, T. A., B. Furgala and H. Shimanuki. 1975. Nosema diseases: the hive and the honey bee, Eds., Hamilton/IL: Dadant and Sons Inc. pp. 635-643.
- Gisder, S., K. Hedtkke, N. Mockel, M. C. Frielitz, A. Linde and E. Genersch. 2010. Five-year cohort study of *Nosema* spp. in Germany: does climate shape virulence and assertiveness of *Nosema ceranae*. *Appl. Environ. Microbiol.* 76: 3032–3038.
- Hassanein, M. H. 1951. Studies on the effect of infection with *Nosema apis* on the physiology of the queen honey-bee. *Q. J. Microsc. Sci.* 92: 225-231.
- Hassanein, M. H. 1952. Some studies on amoeba disease. *Bee World.* 33: 109-112.
- Hedtkke, K., P. M. Jensen, A. B. Jensen and E. Genersch. 2011. Evidence for emerging parasites and pathogens influencing outbreaks of stress-related diseases like chalkbrood. *J. Invertebr. Pathol.* 108: 167–173.
- Higes, M., R. Martin-Hernandez and A. Meana. 2006. *Nosema ceranae*, a new microsporidian parasite in honeybees in Europe. *J. Invertebr. Pathol.* 92: 81–83.
- Higes, M., P. Palencia, R. Martin-Hernandez and A. Meana. 2007. Experimental infection of *Apis mellifera* honeybees with *Nosema ceranae* (Microsporidia). *J. Invertebr. Pathol.* 94: 211–217.
- Higes, M., R. Martin-Hernandez, C. Botias, E. G. Bailon, A. V. Gonzalez-Porto, L. Barrios, M. J. Del Nozal, J. L. Bernal, J. J. Jimenez, P. G. Palencia and A. Meana. 2008a. How natural infection by *Nosema ceranae* causes honeybee colony collapse. *Environ. Microbiol.* 10: 2659–2669.
- Higes, M., R. Martin-Hernandez, B. Garrido, P. Palencia and A. Meana. 2008b. Detection of infective *Nosema ceranae* (Microsporidia) spores in corbicular pollen of forager honeybees. *J. Invertebr. Pathol.* 97: 76–78.

- Higes, M., M. J. Nozal, A. Alvaro, L. Barrios, A. Meana, R. Martin-Hernandez, J. L. Bernal and J. Bernal. 2011. The stability and effectiveness of fumagillin in controlling *Nosema ceranae* (Microsporidia) infection in honey bees (*Apis mellifera*) under laboratory and field conditions. *Apidologie*. 42: 364–377.
- Higes, M., A. Meana, C. Bartolome, C. Botias and R. Martin-Hernandez. 2013. *Nosema ceranae* (Microsporidia), a controversial 21st century honey bee pathogen. *J. Environ. Microbiol.* 5: 17–29.
- Hornitzky, M. 2008. Does *Nosema ceranae* infect bees and contaminate honey in Australia. RIRDC Publication. 8: 133.
- Huang, W. F., J. H. Jiang, Y. W. Chen and C.H. Wang. 2007. A *Nosema ceranae* isolate from the honeybee *Apis mellifera*. *Apidologie*. 38: 30–37.
- Huang, Q., Kryger, P., Le Conte, Y., Moritz, R.F., 2012. Survival and immune response of drones of a nosemosis tolerant honey bee strain towards *N. ceranae* infections. *J. Invertebr. Pathol.* 109: 297–302.
- Huang, W. F., L. F. Solter, P. M. Yau and B. S. Imai. 2013. *Nosema ceranae* escapes fumagillin control in honey bees. *PLoS Pathog.* 9: 1-9.
- Invernizzi, C., C. Abud, I. H. Tomasco, J. Harriet, G. Ramallo, J. Campa, H. Katz, G. Gardiol and Y. Mendoza. 2009. Presence of *Nosema ceranae* in honeybees (*Apis mellifera*) in Uruguay. *J. Invertebr. Pathol.* 101: 150–153.
- Katinka, M. D., S. Duprat, E. Cornillot, G. Metenier, F. Thomarat, G. A. Prensier, V. A. Barbe, E. Peyretaillade, P. Brottier, P. Wincker, F. A. Delbac, H. E. Alaoui, P. Peyret, W. Saurin, M. Gouy, J. Weissenbach and C. P. Vivares. 2001. Genome sequence and gene compaction of the eukaryote parasite *Encephalitozoon cuniculi*. *Nature*. 414: 450–453.
- Kilani, M. 2012. Nosemosis. (Online). CIHEAM - Options Mediterraneennes. Available: http://www.oie.int/fileadmin/home/eng/health_standards/tahm/2.02.04_nosemosis.pdf (September 8, 2012).
- Kralj, J. and S. Fuchs. 2010. *Nosema* sp. influences flight behavior of infected honey bee (*Apis mellifera*) foragers. *Apidologie*. 41: 21–28.

- Kojima, Y., T. Toki, T. Morimoto, M. Yoshiyama, K. Kimura and T. Kadowaki. 2011. Infestation of Japanese native honey bees by tracheal mite and virus from non-native European honey bees in Japan. *Microbial. Ecol.* 62: 895–906.
- Lefkove, B., B. Govindarajan and J. L. Arbiser. 2007. Fumagillin: an anti-infective as a parent molecule for novel angiogenesis inhibitors. *Expert. Rev. Anti. Infect. Ther.* 5: 573–579.
- Lopez, M. I., J. S. Pettis, I. B. Smith and P. S. Chu. 2008. Multiclass determination and confirmation of antibiotic residues in honey using LC-MS/MS. *Agric. Food Chem. J.* 56: 1553-1559.
- Lotfi, A., R. Jamshidi, H. A. Shahryar and M. Yousefkhani. 2009. The prevalence of nosemosis in honeybee colonies in Arasbaran region (Northwestern Iran). *American-Eurasian J. Agric. & Environ. Sci.* 5: 255-257.
- Lowther, W. T. and B. W. Matthews. 2000. Structure and function of the methionine aminopeptidases. *Biochim. Biophys. Acta. J.* 1477: 157-167.
- Malone, L. A., H. A. Giaccon and M.R. Newton. 1995. Comparison of the responses of some New Zealand and Australian honey bees (*Apis mellifera* L.) to *Nosema apis* Z. *Apidologie*. 26: 495–502.
- Malone, L. A. and D. Stefanovic. 1999. Comparison of the response of two races of honeybees to infection with *Nosema apis* Zander. *Apidologie*. 30: 375–382.
- Malone, L. A., H. S. Gatehouse and E. L. Tregidga. 2001. Effects of time, temperature, and honey on *Nosema apis* (Microsporidia: Nosematidae), a parasite of the honeybee, *Apis mellifera* (Hymenoptera: Apidae). *Invertebr. Pathol. J.* 77: 258–268.
- Martin-Hernandez, R., A. Meana, L. Prieto, A. M. Salvador, B. Garrido and M. Higes. 2007. Outcome of colonization of *Apis mellifera* by *Nosema ceranae*. *Appl. Environ. Microbiol.* 73: 6331–6338.
- Martin-Hernandez, R., A. Meana, P. Garcia-Palencia, P. Marin, C. Botias, E. Garrido-Bailon, L. Barrios and M. Higes. 2009. Effect of temperature on the biotic potential of honeybee microsporidia. *Appl. Environ. Microbiol.* 75: 2554–2557.

- Martin-Hernandez, R., C. Botias, L. Barrios, A. Martinez-Salvador, A. Meana, C. Mayack and M. Higes. 2011. Comparison of the energetic stress associated with experimental *Nosema ceranae* and *Nosema apis* infection of honeybees (*Apis mellifera*). *Parasitol. Res.* 3: 605–612.
- Matheson, A. 1993. World bee health report. *Bee World*. 74: 176–212.
- Mayack, C., D. Naug, C. Mayack and D. Naug. 2009. Energetic stress in the honeybee *Apis mellifera* from *Nosema ceranae* infection. *J. Invertebr. Pathol.* 100: 185–188.
- Mayack, C. and D. Naug. 2010. Parasitic infection leads to decline in hemolymph sugar levels in honeybee foragers. *J. Insect. Physiol.* 56: 1572–1575.
- MeSH, Medical Subject Headings. 2013. Nosema. (Online). Available: <http://www.ncbi.nlm.nih.gov/mesh/68016818> (June 19, 2013).
- Mollah, H. M., E. G. Novoa and G. H. Paul. 2010. A multiplex PCR assay to diagnose and quantify nosema infections in honey bees (*Apis mellifera*). (Online). Available: journal homepage: www.elsevier.com/locate/jip (June 20, 2012).
- Mussen, E.C. 2011. Diagnosing and treating nosema disease. The University of California, Davis. 4 pp.
- Nabian, S., K. Ahmad, M. H. Nazem Shirazi and A. G. Sadeghian. 2011. First detection of *Nosema ceranae*, a microsporidian protozoa of european honeybees (*Apis mellifera*) In Iran. *Iran. Parasitol. J.* 6: 89 -95.
- Naug, D. and A. Gibbs. 2009. Behavioral changes mediated by hunger in honeybees infected with *Nosema ceranae*. *Apidologie*. 40: 595-599.
- Notomi, T., H. Okayama, H. Masubuchi, T. Yonekawa, K. Watanabe, N. Amino and T. Hase. 2000. Loop-mediated isothermal amplification of DNA. *Nucleic. Acids. Res.* 28: E63.
- OIE, Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 2.2.4. 2008. Nosemosis of honey bees. OIE, Paris, France. 4 pp.
- Oliver, R. 2012. Powdered sugar dusting – sweet and safe, but does it really work? Part 1. (Online). Available: <http://scientificbeekeeping.com/powdered-sugar-dusting-sweet-and-safe-but-does-it-really-work-part-1/pdf>. (September 19, 2012).

- Oliver, R. 2013. *Nosema ceranae*: Kiss of death or Much ado about nothing. (Online). Available: <http://scientificbeekeeping.com/nosema-ceranae-kiss-of-death-or-much-ado-abuot-nothing/>. (September 8, 2014).
- Paxton, R. J., J. Klee, S. Korpela and I. Fries. 2007. *Nosema ceranae* has infected *Apis mellifera* in Europe since at least 1998 and may be more virulent than *Nosema apis*. *Apidologie*. 38: 558–565.
- Ptaszynska, A. A., G. Borsuk, G. Wozniakowski, S. Gnat and W. Malek. 2014. Loop-mediated isothermal amplification (LAMP) assays for rapid detection and differentiation of *Nosema apis* and *N. ceranae* in honeybees. *FEMS Microbiol. Lett.* 357: 40–48.
- Rada, V., M. Machova, J. Huk, M. Marounek and D. Duskova. 1997. Microflora in the honeybee digestive tract: counts, characteristics and sensitivity to veterinary drugs. *Apidologie*. 28: 357–365.
- Razmaraii, N. and H. Karimi. 2010. A survey of nosema of honey bee (*Apis mellifera*) in east azarbaijan province of Iran. *Anim. Vet. Adv. J.* 9: 879-882.
- Rinderer, T. E. and H. A. Sylvester. 1978. Variation in response to *Nosema apis*, longevity, and hoarding behavior in a free-mating population of the honey bee. *Ann. Entomol. Soc. Am.* 71: 372–374.
- Smart, M. D. and S. S. Walter. 2011. *Nosema ceranae* in age cohorts of the western honey bee (*Apis mellifera*). *J Invertebr Pathol.* 109: 148–151.
- Sin, N., L. Meng, M. Q. Wang, J. J. Wen, W. G. Bornmann and C. M. Crews. 1997. The antiangiogenic agent fumagillin covalently binds and inhibits the methionine aminopeptidase, MetAP-2. *Proc. Natl. Acad. Sci. USA.* 94: 6099–6103.
- Solter, L. F. 2012. *Nosema* Microsporidia: friend foe and intriguing creatures. (Online). Available: http://www.extension.org/pages/31234/nosema-microsporidia:-friend-foe-and-intriguing-creatures/print/#.VBk8SP1_uN3. (September 17, 2014).
- Stevanovic, J., P. Simeunovic, B. Gajic, N. Lakic, D. Radovic, I. Fries and Z. Stanomirovic. 2013. Characteristics of *Nosema ceranae* infection in Serbian honey bee colonies. *Apidologie*. 44: 522-536.

- Suwannapong, G., T. Yemor, C. Boonpakdee and M. E. Benbow. 2011. *Nosema ceranae*, a new parasite in Thai honeybees. *J. Invertebr. Pathol.* 106: 236–241.
- Szabo, T. I. and L. P. Lefkovitch. 1989. Effect of brood production and population size on honey production of honeybee colonies in Alberta, Canada. *Apidologie.* 20: 157–163.
- Tarpy, D. R. and J. J. Keller. 2007. Disease management guidelines for honey bee colonies in north Carolina. Apiculture program department of entomology north Carolina state University. 12 pp.
- Traver, B. E., M. R. Williams and R. D. Fell. 2012. Comparison of within hive sampling and seasonal activity of *Nosema ceranae* in honey bee colonies. *J. Invertebr. Pathol.* 109: 187–193.
- Traver, B. E. and R. D. Fell. 2014. *Nosema* and honey bee colony health, Virginia polytechnic institute and State University. (Online). Available: <http://pubs.ext.vt.edu/ENTO/ENTO-66/ENTO-66-pdf>. (November 22, 2014).
- Virginiaitech. 2009. IPM elements for honey bees in the mid-Atlantic States. North Carolina State University, Blacksburg, VA 24061. 6 pp.
- Wang, D. and F. Moeller. 1970. The division of labor and queen attendance behavior of nosema infected worker honeybees. *J. Econ. Entomol.* 63: 1539–1541.
- Webster, T. C., 1994. Fumagillin affects *Nosema apis* and honeybees (Hymenoptera: Apidae). *J. Econ. Entomol.* 87: 601–604.
- Webster, C. T., K. W. Pomper, G. Hunt, E. M. Thacker and S. C. Jones. 2004. *Nosema apis* infection in worker and queen *Apis mellifera*. *Apidologie.* 35: 49–54.
- Webster, T. C. 2012. *Nosema ceranae* The inside story; extension, america's research-based learning network (Online). Available: <http://www.beecdcap.uga.edu/documents/CAPAarticle6.html>. (September 8, 2014).
- Woyciechowski, M. and J. Kozlowski. 1998. Division of labor by division of risk according to worker life expectancy in the honey bee (*Apis mellifera* L.). *Apidologie.* 29:191-205.
- Woyke, J. 1984. Correlations and interactions between population, length of worker life and honey production by honeybees in a temperate region. *J. Apic. Res.* 23: 148–156.

- Yang, B., G. Peng, T. Li and T. Kadowaki. 2013. Molecular and phylogenetic characterization of honey bee viruses, nosema microsporidia, protozoan parasites, and parasitic mites in China. *Ecol. Evol.* 3: 298–311.
- Yilmaz, M., C. Ozic and I. Gok. 2012. Principles of nucleic acid separation by agarose gel electrophoresis. Unit 405, Office Block, Hotel Equatorial Shanghai No.65, Yan A Road (West), Shanghai, 200040, China. 9 pp.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved