

เอกสารอ้างอิง

- นพรัตน์ บำรุงรักษ์. (2525). ท่อน้ำยางพารา. วารสารวิทยาศาสตร์ 36(5), 339-343.
- นพรัตน์ บำรุงรักษ์. (2534). เอกสารประกอบวิชาหลักพืชศาสตร์ คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตปัตตานี หน้า 48-56.
- ไพโรจน์ จ้วงพานิช. (2525). หลักวิชาการโรคพืช. ภาควิชาโรคพืช คณะเกษตรศาสตร์ มหาวิทยาลัยเกษตรศาสตร์. หน้า 386.
- วรรณวิไล อินทนู. (2547). การวินิจฉัยโรคพืชการจัดการโรค. ภาควิชาโรคพืช คณะเกษตร กำแพงแสน มหาวิทยาลัยเกษตรศาสตร์ วิทยาเขตกำแพงแสน 108 หน้า
- วราภรณ์ ขจรไชยกุล. (2524). คุณสมบัติและส่วนประกอบของน้ำยางธรรมชาติ. วารสารยางพารา 2(1), 19-27.
- สมพงศ์ สุขมาก. (2536). การปรับปรุงพันธุ์ยางพารา. เอกสารวิชาการเรื่องยาง สถาบันวิจัยยาง กรมวิชาการเกษตร. หน้า 15-36.
- สมพร จันทเดช. (2529). สรีรวิทยาการไหลของน้ำยาง. วารสารวิทยาศาสตร์และเทคโนโลยี. 1(1), 45-54.
- สืบศักดิ์ สนธิรัตน์. (2540). การจัดการโรคพืช. หน้า 107-115.
- เสาวลักษณ์ วิมุตติพงศ์. (2540). เอนไซม์นิวทรอลไฮโดรลัสจากพืชจากน้ำยางพาราและการประยุกต์ใช้. วิทยานิพนธ์วิทยาศาสตรมหาบัณฑิต สาขาวิทยาศาสตร์ชีวภาพ มหาวิทยาลัยสงขลานครินทร์.
- Bekri, M.A., Desair, J., Keijers, V., Proost, P., Leeuwen, M.S.V., VanderLeyden, J. and Broek, A.V. (1999). *Azospirillum irakense* Produces a Novel Type of Pectate Lyase. *Journal of Bacteriology* 182, 2440-2447.
- Bollwell, G.P. (1999). Role of active oxygen species and NO in plant defence. *Curr. Opin. Plant Biology* 2, 287-294.
- Breton, F., Garcia, D., Sanier, C., Eschbach, J.M. and d'Auzac, J. (1997). The interaction between *Corynespora cassicola* and *Hevea brasiliensis* Plantations, *Research Development* 4, 312-335.

- Butler, E.J. (1996). *Phytophthora palmivora* (Butler) var. *palmivora*. In: Erwin DC, Ribeiro OK (ed) *Phytophthora Disease Worldwide*. APS Press, The American Phytopathological Society, St. Paul, Minnesota, 408–422.
- Carpita N.C and Gibeaut D.M. (1993). Structural models of primary cell walls in flowering plants: consistency of molecular structure with the physical properties of the walls during growth. *The Plant Journal* 3, 1–30.
- Chartzoulakis, K., Patakas, A., Kofidis, G., Bosabalidis, A. and Nastou, A. (2002). Water stress affects leaf anatomy, gas exchange, water relations and growth of two avocado cultivars. *Scientia Horticulturae* 95, 39–50.
- Churngchow, N., Suntaro, A. and Wititsuwannakul, R. (1995). Two β -1,3-glucanase isozyme from the latex of *Hevea brasiliensis*. *Phytochemistry* 39, 505–509.
- Chye and Cheung. (1995). β -1,3-glucanase is highly-expressed in laticifers of *Hevea brasiliensis*. *Plant Molecular Biology* 29, 397–402.
- Clark, G.B., Jr., J.T. and Roux, S.J. (2001). Signal transduction mechanisms in plants a review. *Plant Molecular Biology* 80(2), 1–8.
- Cornels, H., Ichinose, Y. and Barz, W. (2000). Characterization of cDNAs encoding two glycine-rich proteins in chickpea (*Cicer arietinum* L.): accumulation in response to fungal infection and other stress factors. *Plant Science* 154, 83–88.
- Cornish, K. (2001). Similarities and differences in rubber biochemistry among plant species. *Phytochemistry* 57, 1123–1134.
- De Lorenzo, G., Cervone, F., Hahn, M.G., Darvill, A. and Albersheim, P. (1991). Bacterial endopectate lyase: evidence that plant cell wall pH prevents tissue maceration and increases the half-life of elicitor-active oligogalacturonides. *Physiology and Molecular Plant Pathology* 39, 335–344.
- Dennis, M.S. and Light, D.R. (1989). Rubber elongation factor from *Hevea brasiliensis*. Identification, characterization, and role in rubber biosynthesis. *Journal of Biological Chemistry* 264, 18608–18617.

- Dickenson, P.B. (1965). The ultrastructure of the latex vessel of *Hevea brasiliensis*. In Proc. Nat. Rubb. Prod. Res. Ass. Jubilee conf. (ed.L.Mullins) pp. 52-66, London:Maclaren & Son Ltd.
- Domingo, C., Roberts, K., Stacey, N.J., Connerton, I., Ruiz-Teran, F. and McCann, M.C. (1998). A pectate lyase from *Zinnia elegans* is auxin inducible. The Plant Journal 13, 17-28.
- Eisenreich, W., Schwarz, M., Cartayrade, A., Arigoni, D., Zenk, M.H. and Bacher, A. 1998. The deoxyxylulose phosphate pathway of terpenoid biosynthesis in plants and microorganisms. Chemical Biology 5, 221-233.
- Farrell, B.D., Dessourd, D.E. and Mitter, C. (1991). Escalation of plant defenses: do latex and resin canals spur plant diversification? American Naturalist 138, 881-900.
- Han, K.H., Shin, D.H., Yang, J., Kim, I.J., OH, S.K. and Chow, K.S. (2000). Gene expression in latex of *Hevea brasiliensis*. Tree Physiology 20, 503-510.
- Hasdai, M., Elmaci, C., Goldschmidt, E.E., Drobya, S. and Porat, R. (2004). Isolation of a thioredoxin h cDNA from grapefruit peel tissue that is induced upon infection by *Penicillium digitatum* and elicitation of pathogen resistance. Physiological and Molecular Plant Pathology 65, 277-283.
- Hoondal, G.S., Tiwari, R. P., Tiwari, R., Dahiya, N., and Beg, O.K. (2002). Microbial alkaline pectinases and their industrial application: a review. Applied Microbiology and Biotechnology 59, 409-418.
- Jacob, J.L., Prevot, J.C. and Kekwisk, R.G.O. (1989). General metabolism of *Hevea brasiliensis* latex (with the exception of isoprenoid anabolism). In Physiology of rubber tree latex, 101-114.
- Kekwisk, R.G. (2001). Latex and Laticifers. Encyclopedia of Life sciences.
- Kita, N., Boyd, C.D., Garrett, M.R., Jurnal, F. and Keen, N.T. (1996). Differential effect of site-directed mutations in Pel C of pectate lyase activity, plant tissue maceration and elicitor activity. Journal of Biological Chemistry 271, 26529-26535.
- Kitajima, S. and Sato, F. (1999). Plant pathogen-related protein molecular mechanism of gene expression and protein function. Journal of Biochemistry 125(1), 1-8.

- Ko, J.H., Chow, K.S. and Han, K.H. (2003). Transcriptome analysis reveals novel features of the molecular events occurring in the laticifers of *Hevea brasiliensis* (Para rubber Tree). *Plant Molecular Biology* 53, 479-492.
- Kuc', J. (1995). Phytoalexins, stress metabolism and disease resistance in plant. *Annual Review of Phytopathology* 33, 275-291.
- Kush, A., Goyvaerts, E., Chye, M.L. and Chua, N.H. (1990). Laticifer-specific gene expression in *Hevea brasiliensis* (rubber tree). *Proceedings of the National Academy of Sciences* 87, 1787-1790.
- Legrand, M., Kuaffmann, S., Geoffroy, P. and Fritic, B. (1987). Biological function of pathogenesis-related protein: four tobacco pathogenesis related protein and chitinases. *Proceedings of the National Academy of Sciences* 84, 6750-6754.
- Li, Z.K, Sanchez, A., Angeles, E., Singh, S., Domingo, J., Huang, N. and Khush, G.S. (2001). Are the dominant and recessive plant disease resistance genes similar? A case study of rice R genes and *Xanthomonas oryzae* pv. *oryzae* races. *Genetics* 159, 757-765.
- Lietzke, S.E., Scavetta, R.D., Yoder, M.D. and Jurnak, F. (1996). The Refined Three-Dimensional Structure of Pectate Lyase E from *Erwinia chrysanthemi* at 2.2 Å Resolution. *Plant Physiology* 111, 73-92.
- Lin, W.C., Cheng, M.L., Wu, J.W., Yang, N.S., Cheng, C.P. (2005). A glycine-rich protein gene family predominantly expressed in tomato roots, but not in leaves and ripe fruit. *Plant Science* 168, 283-295.
- Martin, M.N. (1991). The Latex of *Hevea brasiliensis* Contains High Levels of Both Chitinases and Chitinases/Lysozymes. *Plant Physiology* 95, 469-476.
- Marín-Rodríguez, M.C., Orchard, J. and Seymour, G.B. (2002). Pectate lyases, cell wall degradation and fruit softening. *Journal of Experimental Botany* 53, 2115-2119.
- Marín-Rodríguez, M.C., Smith, D.L., Manning, K., Orchard, J. and Seymour, G.B. (2003). Pectate lyase gene expression and enzyme activity in ripening banana fruit. *Plant Molecular Biology* 51, 851-857.

- Nasser, W., Chalet, F. and Robert-Baudouy, J. (1990). Purification and characterization of extracellular pectate lyase from *Bacillus subtilis*. *Biochimie* 72, 689-695.
- Obaywn, J. and Korsten, L. (2003). Integrated control of green and blue mold using *Bacillus subtilis* in combination with sodium bicarbonate or hot water. *Plant Pathology*, 187-197
- Pilatzke-Wunderlich, I. and Nessler, C.L. (2001). Expression and activity of cell-wall-degrading enzymes in the latex of opium poppy, *Papaver somniferum* L. *Plant Molecular Biology* 45, 567-576.
- Pua, E-C., Ong, C-K., Liu P. and Liu1, J-Z. (2001). Isolation and expression of two pectate lyase genes during fruit ripening of banana (*Musa acuminata*). *PHYSIOLOGIA PLANTARUM* 113, 92-99.
- Rodriguez, M.C.M., Orchard, J. and Seymour, G.B. (2002). Pectate lyase, cell wall degradation and fruit softening. *Journal of Experimental Botany* 53, 2115-2119.
- Rohmer, M., Knani, M., Simonin, P., Sutter, B. and Sahn, H. (1993). Isoprenoid biosynthesis in bacteria: a novel pathway for the early steps leading to isopentenyl diphosphate. *Biochemistry Journal* 295, 517-524.
- Rojtinnakorn, J., Hirono, I., Itami, T. and Aoki, T. (2002). Gene expression in hemocytes of Kkushima prawn, *Penaeus japonicus*, in response to infection with WSSV by EST approach. *Fish Shellfish Immunology* 13, 69-83.
- Shevchik, V., Robert-Baudouy, J., Hugouviux-Cotte-Pattat, N. (1997). Pectate lyase Pell of *Erwinia chrysanthemi* 3937 belongs to a new family. *Journal of Bacteriology* 179, 7321-7330.
- Singh, A.P., Wi, S.G., Chung, G.C., Kim, Y.S. and Kang, H. (2003). The micromorphology and protein characterization of rubber particles in *Ficus carica*, *Ficus benghalensis* and *Hevea brasiliensis*. *Journal of Experimental Botany* 54, 985-992.
- Soriano, M., Blanco, A., Diaz, P., and Pastor, F.I.J. (2000). An unusual pectate lyase from a *Bacillus* sp. with high activity on pectin: cloning and characterization. *Microbiology* 146, 89-95.

- Starr, M.E. and Morán, P. (1962). Eliminative split of pectic substances by phytopathogenic soft-rot bacteria. *Science* 135, 920–921.
- Supungul, P., Klinbunga, S., Pichyangkura, R., Jitrapakdee, S., Hirono, L., Aoki, T. and Tassanakajon, A. 2002. Identification of immune-related Gene in Hemocytes of Black Tiger Shrimp *Penaeus monodon*. *Journal Marine Biotechnology* 4, 487–494.
- Tai, T.H, Dahlbeck, D., Clark, E.T, Gajiwala, P., Pasion,R., Whalen, M.C., Stall, R.E and Staskawicz, B.J. (1999). Expression of the Bs2 pepper gene confers resistance to bacterial spot disease in tomato. *Proceedings of the National Academy of Sciences* 96, 14153–14158.
- Tamaru, Y. and Doi. R.H. (2001). Pectate lyase A, an enzymatic subunit of the *Clostridium cellulovorans* cellulosome. *Proceedings of the National Academy of Sciences* 98, 4125–4129.
- Tan, A.M. and Law, F.C. 1975. Phytoalexin production by *Hevea brasiliensis* in response to infection by *Colletotrichum gloeosporioides* and its effect on the other fungi. *Proceeding of International Rubber Conference RRIM600*. Kuala Lumpur, Malaysia 3, 217–227.
- Tör, M., Brown,D., Cooper, A., Tör A.W., Sjölander, K., Jones, J.D.J and Holub, E.B. (2004). Arabidopsis downy mildew resistance gene RPP27 encodes a receptor-like protein similar to CLAVATA2 and tomato cf-9. *Plant Physiology* 135, 1100–1112.
- Van der Biezen, E.A. (2001). Quest for antimicrobial genes to engineer disease-resistant crops. *Trends Plant Science* 6, 89–91.
- Venkatachalam, P., Thulaseedharan, A. and Raghothama. (2007). Identification of expression profiles of tapping panel dryness (TPD) associated gene from the latex of rubber tree (*Hevea brasiliensis* Muell. Arg.). *Planta* 226, 499–515.
- Vogel, J., Raab, T.K., Schiff, C. and Somerville, S. (2002). PMR6, a pectate lyase-like gene required for powdery mildew susceptibility in Arabidopsis. *Plant Cell* 14, 2095–2106.

- Wegener, C.B., Olsen, O. (2004). Heterologous pectate lyase isoenzymes are not different in their effects on soft rot resistance in transgenic potatoes. *Physiological and Molecular Plant Pathology* 65, 59–66.
- Wi, S.J., Kim, W.J. and Park, K.Y. (2006). Overexpression of carnation S-adenosylmethionine decarboxylase gene generates a broad-spectrum tolerance to abiotic stresses in transgenic tobacco plants. *Plant Cell and Reproduction* 25, 1111-1121.
- Wing, R.A., Yamaguchi, J., Larabell, S.K, Ursin, V.M. and McCormick, S. (1989). Molecular and genetic characterization of two pollen-expressed genes that have sequence similarity to pectate lyases of the plant pathogen *Erwinia*. *Plant Molecular Biology* 14, 17-28.
- Yeang, H.Y., Arif, S.A.M, Yusof, F. and Sunderasan, E. (2002). Allergenic protein of natural rubber latex. *Method* 27, 32-45.
- Yeang, H. Y., Cheong, K.F., Sunderasan, E., Hamzah, S., Chew, N.P., Hamid, S., Hamilton, R.G. and Cardosa, M.j. (1996). The 14.6 kD rubber elongation factor (Hev b 1) and 24 kd (Hev b 3) rubber particle proteins are recognized by IgE from patients with spina bifida and latex allergy. *Journal of Allergy And Clinical Immunology* 98, 628-639.
- Zhang, L., Ma, X.L., Zhang, Q., Ma, C.L., Wang, P.P., Sum, Y.F., Zhao, Y.X. and Zhang, H. (2001). Expressed Sequence Tags: from a NaCl-treated Suaeda salsa cDNA library. *Gene* 267, 198-200
- Zhang, S. and Liu, Y. (2001). Activation of salicylic acid-induced protein kinase, a mitogen-activated protein kinase, induces multiple defense responses in tobacco. *Plant Cell* 13, 1877–1889.
- http://www.moac.go.th/builder/moac06/information/view_index.php?id=2652
(14 กันยายน 2550)
- www.mobot.org/.../top/chemicals/phaseollin.gif (14 กันยายน 2550)
- www.chemblink.com/structures/60-82-2.gif (14 กันยายน 2550)
- http://www.daviddarling.info/images/plant_cell_wall.gif (10 กันยายน 2550)

<http://food.oregonstate.edu/images/learn/55.gif> (10 กันยายน 2550)