

## DAFTAR PUSTAKA

- Ahmadpour, P., A.M. Nawi, A. Abdu, Z. Abdul-Hamid, D.K. Singh, A. Hassan, N.M. Majid, S. Jusop. 2010. Uptake of heavy metals by *Jatropha curcas* L. planted in coils containing sewage sludge. *Am. J. Appl. Sci* 7:1291–1299.
- Ajungla, L., P.P. Patil, R.B. Barmukh, and T.D. Nikam. 2009. Influence of biotic and abiotic elicitors on accumulation of hyosciamin and scopolamine in root culture of *Datura metel* L.. *Indian J. of Biotech.* 8 : 317-322.
- Alexander, J. Benford, D., Cockburn, A., Cravedi, JP., Dogliotti, E., Di Domenico, A., Fernandez-Cruz, M. L., Furst, P., Fink-Gremmels, J., Galli, C. L., Grandjean, P., Gzyl, J., Heinemeyer, G., Johansson, N., Mutti, A., Schlatter, J., van Leeuwen, R., Peteghem, C. V., and Verger, P. 2008. Tropane Alkaloids (from *Datura* sp.) as Undesirable Substances in Animal Feed. *The European Food Safety Authority Journal* 691: 1-55.
- Ali, N.A., M.P. Bernal, and M. Ater. 2002. Tolerance and bioaccumulation of copper in *Phragmites australis* and *Zea mays*. *Plant Soil* 239:103–111.
- Angelova, Z., S. Georgiev, and W. Roos. 2006. Elicitation of Plants. *Biotechnol. & Biotechnol. Eq.* 20 (2).
- Aryanti, N. 2007. Pengaruh jenis pupuk terhadap profil protein daun *Justicia gendarussa* Burm. F. : Analisis dengan Metode Elektroforesis. Undergraduate Thesis dari JIPTUNAIR.
- Azimi, A.A., B.D. Hashemloian, H. Ebrahimzadeh, and A. Majd. 2008. High *in vitro* production of anti-canceric indole alkaloids from periwinkle (*Catharanthus roseus*) tissue culture. *African J. of Biotech.* 7 (16): 2834-2839.
- Bargagli, R.1998. Trace element in Terrestrial Plants: An Ecophysiological approach to Biomonitoring and Biorecovery. Springer Verlag, Berlino,
- Backer, C.A. & Brinker, R.C.B. van Den. 1963. Flora of Java Spermatophytes only vol. II. Rijksherbarium, Netherlands.
- Bates, L.S., R.P. Waldren, and I.D. Teare. 1973. Rapid determination of free proline for water stress studies. *Plant and Soil*, 39: 205-207.
- Baycu, G. 2002. Phytochelatin biosynthesis and cadmium detoxification. *J. Cell. Mol. Biol.* 1: 45-55.
- Bhojwani, S.S.and M.K. Razdan. 1996. Plant Tissue Culture: Theory and Practise, a Revised Edition, Elsevier Science, Amsterdam, p.561.
- Bohlmann, J. and C.I. Keeling. 2008. Terpenoid biomaterials. *The Plant J.* 54:656-669.
- Boojar. M.A. and F. Goodarzi. 2007. The Copper tolerance strategies and the role of antioxidative enzymes in three plant species grown on copper mine. *Chemosphere.* 67: 2138-2147.
- Briellmann, H.L., W.N. Setzer, P.B. Kaufman, A. Kirakosyan, and L.J. Cseke. 2006. Phytochemical : The Chemical component of Plants. In: L. J. Cseke, A. Kirakosyan, P. B. Kaufman, S. W. James, A. Duke, H. L. Briellmann (Eds.). *Natural Products from Plants*. CRC Press. Taylor&Francis Group, LLC. USA. pp. 9, 16-17.

- Bruce, N.C. 1999. Alkaloid. Cambridge, UK. [www.wiley-vch.de/books/pdf/v08a\\_alk.pdf](http://www.wiley-vch.de/books/pdf/v08a_alk.pdf)
- Carey, F.A. 2006. Organic Chemistry. 6<sup>th</sup> ed. McGraw Hill. New York. p.934.
- Chadikun, P. 1998. Isolasi protein spesifik akibat induksi logam berat Cu, Pb dan Cd pada tanaman *Crotalaria* sp. Tesis. Bioteknologi. C.1 (465/H/68). Universitas Gadjah Mada. Yogyakarta.
- Chawla, H.S. 2002. Plant Biotechnology Laboratory Manual for Plant Biotechnology. Oxford dan IBH Publishing. New Delhi.
- Choudhury, S. and S.K. Panda. 2005. Toxic effects, oxidative stress and ultrastructural changes in moss *Taxithelium nepalense* (Schwaegr.) Broth. Under chromium and lead phytotoxicity *Water Air Soil Pollut.* 167: 73-90.
- Cobbett, C.S. 2000. Phytochelatins and Their Roles in Heavy Metal Detoxification. *J. Plant Physiol.* 123:825-832.
- and P. Goldsbrough. 2002. Phytochelatins and metallothioneins: roles in heavy metal detoxification and homeostasis. *Ann Rev Plant Biol* 53:159–182
- Cona, A, Rea, G, Angelini, R., Federico, R. and Tavladoraki, P. 2006. Function of Amine Oxidases in Plant Development and Defence. *Trends Plant Sci.* 11:80-88.
- Contin, A., R. van der Heijden and Verpoorte, R. 1999. Effects of alkaloid precursor feeding and elicitation on the accumulation of secologanin in a *Catharanthus roseus* Cell suspension culture. *Plant Cell Tiss. & Org. Cult.* 56 : 111-119.
- Cronquist, A. 1981. An Integrated System of Classification of Flowering Plant. Columbia University Press, Columbia.
- Dalvi, A.A. and S.A. Bhalerao. 2013. Response of plants towards heavy metal toxicity: an overview of avoidance, tolerance, and uptake mechanism. *Annals of Plant Sci.* 2 (9): 362-368.
- Deo, B. and P.K. Nayak. 2011. Study of copper phytotoxicity on *in vitro* culture of *Musa acuminata* cv. 'Bantala'. *J. of Agric. Biotech. and Sustainable Dev.* 3 (8): 136-140.
- Dewi, K. S. 2009. Pengaruh Elicitor Al<sup>3+</sup> dan Pb<sup>2+</sup> Terhadap Akumulasi Daidzein and Genistein Pada Kalus *Phaseolus vulgaris* L. dan *Phaseolus aureus* Roxb. Pascasarjana Universitas Brawijaya. Malang. (Abstrak).
- Dewick, P.M. 2002. Medicinal Natural Products A Biosynthetic Approach. John Wiley & Sons. Ltd.
- Doran P.M. 1999. Foreign protein production in plant tissue cultures; *Current Opinon in Biotechnology.* 11: 199-204.
- Endress, R. 1994. Plant Cell Biotechnology. Springer-Verlag Berlin, Heidelberg.
- Facchini, P.J. 2001. ALKALOID BIOSYNTHESIS IN PLANTS: Biochemistry, Cell Biology, Molecular Regulation, and Metabolic Engineering Applications. *Annu. Rev. Plant Physiol. Plant Mol. Biol.* 52:29–66.
- Fernandes, J.C. and F.S. Henriques. 1991. Biochemical, physiological and structural effects of excess copper in plants. *Bot. Rev.*, 57: 246-273.
- Foulkes, E.C. 2000. Transport of Toxic Heavy Metals Across Cell Membranes. *J. Exp. Biol. and Medicine (Abstract).*
- Fowler, M.W., 1983. Commercial application and economic aspects of mass plant cell culture, dari Mantell, S.H., Smith, H. (Eds.), *Plant Biotechnology*. Cambridge University Press, London, 3-38.

- Gabbrielli R, Mattioni C, and Vergnano O. 1991. Accumulation mechanisms and heavy metal tolerance of a nickel hyperaccumulator. *J. Plant Nutr* 14:1067-1080.
- Gershenzon, J. and N., Dudareva. 2007. The function of terpene natural products in the natural world. *Nature Chem. Biol.* 3:408-414.
- Gori, P., S. G. Schiff, Santandrea, and Bennici, A. 1998. Response of *in vitro* cultures of *Nicotiana tabacum* L. to copper stress and selection of plants from Cu tolerant callus. *Plant Cell Tiss. Org. Cult.* 53:161-169
- Hall, J.L. 2002. Cellular mechanism of heavy metal detoxification and tolerance. *J. Exp. Bot.*, h53: 1-11.
- Hartman, H T., D E. Kester, and F T. Davies. 2000. Plant Propagation Principle and Practicer Fifth edition. Prentice-Hall International. New Jersey.
- Hashimoto, T and Y. Yamada. 1987. Effects of culture conditions on tropane alkaloid formation in *Hyoscyamus niger* suspension cultures. *Agric. Biol. Chem.*, 51: 2769-2774.
- Heinstein, P. and El-Shagi. 1981. Formation of gossypol by *Gossypium hirsutum* L. cell suspension cultures. *J. of Nat. Prod.* 44: 1-6.
- Indrayanto, G., E. Worokarti, dan Didik. 1991. Pengaruh fosfat, kolesterol, dan beberapa elisitor terhadap kandungan hekogenin pada kultur *Agave amaniensis*. Makalah yang disampaikan pada seminar nasional : Produksi metabolit sekunder dengan Kultur Jaringan. UGM Yogyakarta.
- Indrianto, A., I. Barinova, A. Touraev, and E.H.Bors. 2001. Tracking individual wheat microspores in vitro: identification of embryogenic microspores and body axis formation in the embryo. *Planta*. 212: 163-174.
- Jouili, H., Bouazizi, H. and E., El Ferjani. 2011. Plant peroxidases: biomarkers of metallic stress. *Acta Physiol. Plant* 33:2075-2082.
- Kanoun-Boule, M., M. B. De Albuquerque, C. Nabais, and H. Freitas. 2008. Copper as an Environmental Contaminant: Phytotoxicity and Human Health Implications. in Prasad, M.N.V.(Ed.): *Trace Elements As Contaminants and Nutrients*. A John Wiley & sons, Inc.
- Karimi, F. and E. Khataee. 2011. Aluminum elicits tropane alkaloid production and antioxidant system activity in micropropagated *Datura innoxia* plantlets. *Acta Physiol Plant*. Published online: 3 Desember 2011
- Kartasapoetra. 2004. Budidaya Tanaman Berkhasiat Obat. PT. Bineka Karya Jakarta.
- Kartosentono, S., S. Suryawati, A. Syahrani, G. Indrayanto, dan N.C.Zaini. 2002. Fitoremediasi Pb<sup>2+</sup> serta pengaruhnya terhadap pertumbuhan dan kandungan hekogenin kultur suspensi sel *Agave amaniensis*. Bulletin of the Indonesian Society of Natural Products Chemistry, *Himpunan Kimia Bahan Alam Indonesia*. Bandung. 2 (1): 20-25. (Abstrak).
- Kartosentono, S. 2005. Mekanisme Bioremediasi Logam Berat Tembaga pada Kultur Jaringan Tanaman *Agave amaniensis*. *Research Report from JIPTUNAIR* (Abstrak).
- Katoh, A., T. Shoji, and T. Hashimoto. 2007. Molecular Cloning of N-methylputrescine Oxidase from Tobacco. *Plant Cell Physiol*. 48 (3): 550-554.
- Kristina, N.N., E.D. Kusumah, dan P. K. Lailani. 2009. Analisis Fitokimia dan Penampilan Pola Pita Protein Tanaman Pegagan (*Centella asiatica*) Hasil Konservasi *in vitro*. *Bul. Littro*. 20 (1): 11 - 20.
- Khanam, S. 2007. Pharmacognosy, General Study of Biosynthesis of Secondary Metabolites.

- Lasat, M.M., A.J.M. Baker, L.V. Kochian. 1996. Physiological characterization of root Zn<sup>2+</sup> absorption and translocation to shoot in Zn hyperaccumulator and nonaccumulator species of *Thlaspi*. *Plant Physiol* 112:1715-1722.
- Lehotai, N., A. Peto, S. Bajka'n, L. Erdei, I. Tari, and Z. Kolbert. 2011. *In vivo* and *in situ* visualization of early physiological events induced by heavy metals in pea root meristem. *Acta Physiol. Plant.* 33: 2199–2207.
- Loughman, B.C. and G. Ferrari. 1999. Some Effects of Environmental Factors on the Acquisition of Inorganic Ion by Higher Plants. in H.R. Lerner (ed.): *Plant Responses to Environmental Stresses from Phytohormones to Genome Reorganization*. Marcel Dekker, Inc. New York.
- Li, F., J. Shi, C. Shen, G. Chen, S. Hu, and Y. Chen. 2009. Proteomic characterization of copper stress response in *Elsholtzia splendens* roots and leaves. *Plant Mol. Biol.* 71:251–263.
- Ma, Y. L., B. Yuan, X. Li, S. Chen, and S. Lu. 2012. Genome-wide identification and characterization of novel genes involved in terpenoid biosynthesis in *Salvia miltiorrhiza*. *J. Exp. Bot.* online-published.
- Macek, T., P. Kotrba, M. Suchova, F. Skacel, K. Demnerova, and T. Rumi. 1994. Accumulation of cadmium by hairy root cultures of *Solanum nigrum*. *Biotech. Letters* 16 (6): 621-624.
- Manuhara, Y.S.W. 2001. Regenerasi Tanaman Sawi (*Brassica juncea* L.var Morakot) Melalui Teknik Kultur Jaringan. Jurnal MIPA Universitas Airlangga 6 (2):127-130.
- Marschner, H. 1995. Mineral Nutrition of Higher Plants, second edition. London: Academic Press.
- Martins, L. L. and M. P. Mourato. 2006. Effect of excess copper on tomato plants: Growth parameters, enzyme activities, chlorophyll, and mineral content. *J. Plant Nutr.* 29:2179–2198.
- Mateos, R.G., M. S. Herná'ndez, M. M. Va'zquez, and A. V. Monter. 1999. Isolation of Alkaloids of *Erythrina* from Tissue Culture. *Phytochem. Anal.* 10 : 12–16.
- McGrath, S.P., Z.G. Shen, and F.J. Zhao. 1997. Heavy metal uptake and chemical changes in rhizosphere of *Thlaspi caerulescens* and *Thlaspi ochroleucum* grown in contaminated soils. *Plant Soil* 188:153-159.
- Memon, A.R., A. Ozdemir, and D. Aktoprakligil. 2001. Heavy metal accumulation in plants. *Biotechnol. Biotec Eq.* 15: 44-48.
- Miroslava, S and G. Daum. 2011. Squalene – biochemistry, molecular biology, process biotechnology, and applications. *Eur. J. Lipid Sci. Technol.* 1-22.
- Naik, G.R. and K.H. Babu. 1988. Redifferentiation of NaCl tolerant sugarcane plants from callus derived resistant lines. *Curr. Sci.* 57:432-434.
- Najmudin, M.A. 2006. Respon Kultur Pucuk *Fagraea blumei* G. Don terhadap Cu<sup>2+</sup> dalam berbagai konsentrasi. Skripsi. Universitas Airlangga Surabaya.
- Nasim, S.A. and B. Dhir. 2010. Heavy metals alter the potency of medicinal plants. *Rev. Environ Contam Toxicol.* 203: 139-149.
- Notohadiprawiro, T. 2006. Logam berat dalam Pertanian. Jurusan Ilmu Tanah Fakultas Pertanian UGM. Yogyakarta.
- Nugroho, A.P. and Frank, H. 2012. Effect of copper exposure on calcium, carbohydrate, and protein levels in the freshwater mussel *Anodonta anatina*. *Toxicological & Environmental Chemistry* 94 (1): 99-108.

- Nurchayati, Y, R.R. Esyanti, dan A.H. Siregar. 2006. Produksi Gosipol Menggunakan Kultur Akar Berambut *Gossypium hirsutum* L. Cv. Kanesia 7. *Berkala Ilmiah Biologi*. 5 (1): 51-56.
- dan F.A. Rahmah. 2010. Kandungan asam askorbat pada Kultur Kalus Rosela (*Hibiscus sabdariffa* L.) dengan variasi Konsentrasi Sukrosa dalam Media MS. *Majalah Obat Tradisional*, 15(2), 71 – 74.
- Palazon, J., Navarro-Ocana, A., Hernandez-Vazquez, L., and M.H. Mirjalili. 2000. Application of Metabolic Engineering to The Production of Scopolamine. *Molecules* 13: 1722-1742.
- Panda, S.K., LB Singha, and M.H. Khan. 2003. Does aluminium phytotoxicity induce oxidative stress in greengram. *Bulg. J. Plant Physiol.* 29:77–86
- and Choudhury, S. 2005. Chromium Stress in Plants. *Braz. J. Plant. Physiol.*
- Peer, W.A., I.R. Baxter, E.L. Richard, J.L. Freeman, and A.S. Murphy. 2006. Phytoremediation and hyperaccumulation plants.
- Pillon-Smits, E. 2005. Phytoremediation. *Annu.Rev. Plant Biol.* 56:15-39.
- Pitta-Alvarez, S., P.L. Marconi and A. Giulietti. 2003. The influence of different elicitors on hyosyamine and scopolamine content in hairy root cultures of *Brugmansia candida*. *In Vitro Cell & Dev. Biol. Plant.* 39 (6) : 640-644.
- Prasad, M.N.V. 2008. Trace Elements as Contaminants and Nutrients : Consequences in Ecosystems and Human Health John Wiley & Sons. Inc.
- Purnhauser, L. and G. Gyulai. 1993. Effect of copper on shoot and root regeneration in wheat, triticale, rape and tobacco tissue cultures. *Plant Cell, Tissue and Organ Culture* 35: 131-139
- Quartacci, M. F., E. Cosi, S. Meneguzzo, C. Sgherri, and F. Navari-Izzo. 2003. Uptake and translocation of copper in Brassicaceae. *J. Plant Nutr.* 26:1065–1083.
- Rahayu, S., R. R. Esyanti dan A.H. Siregar. 2006. Pengaruh Elisitasi dengan *Verticillium dahliae* Kleb dan *Rhizoctonia Solani* Kuhn terhadap kandungan Gosipol dalam kalus *Gossypium hirsutum* L. pada beberapa tingkat Subkultur. *Biosfera* 23 (1): 9-14.
- Reichman, S. M. 2002. The Responses of Plants to Metal Toxicity: A Review Focusing on Copper, Manganese and Zinc. Melbourne: Australian Minerals & Energy Environment Foundation.
- Reid, R. J. 2001. Mechanisms of micronutrient uptake in plants. *Aust. J. Plant Physiol.* 28:659–666.
- Roberts, M.F. and D. Strack, 1999. Biochemistry and Physiology of Alkaloids and Betalains, in *Biochemistry of Plant Secondary Metabolism*. M. Wink (ed.). Sheffield Academic Press. England.
- Robins, R.J. 1994. Secondary products from cultured cell and organs in: Molecular and cellular approaches, dalam Dixon, R.A. Gonzales, R.A. (Eds.): *Plant Cell Cultures, A practical approach*, second edition, Oxford University press, New York, 169-198.
- Rout, J.R. and S.L. Sahoo. 2012. Morphological and protein profile alterations in *Withania somnifera* L. with response to iron stress. *Indian J. L. Sci.* 2(1): 21-25.
- Roy, B. and A.B. Mandall 2005. Towards Development of Al-toxicity Tolerant Lines in Indica Rice by Exploiting Somaclonal Variation. *Euphytica* 145(3): 221-227 (Abstract).



- Sabeh, D. Al-Utbi, J. Niran, Al-Salihi, A. Suhad, and Al-Kanany. 2013. Extraction and Identification of alkaloids from wild and *In Vitro* germinated plants of *Datura metel* L. Topclass *J. of Herbal Medicine* Vol. 2(4) pp. 65-74.
- Sadik, K., P. R. Rubaihayo, M. J. S. Magambo, and M. Pillay. 2006. Generation of cell suspensions of East African highland bananas through scalps. *African J. of Biotechnology* 6 (11) : 1352-1357.
- Saito, K. and H. Mizukami. 2002. in: K.M. Oksman-Caldentey, W.H. Barz (Eds.): *Plant Biotechnology and Transgenic Plants*, Marcel Dekker, New York, p.223.
- Salisbury, F.B. and Ross, C.W.1992. *Plant Physiology*. Wadsworth. Inc.Belmont, California.
- Salt, D.E, R.D. Smith, and I. Raskin.1998. Phytoremediation. *Annu Rev. Plant Physiol Plant Mol. Biol.* 49:643–648
- Seth, C.S. 2011. A review on mechanism of plant tolerance and role of transgenic plants in environmental clean-up. *Bot.Rev.*
- Sarma, H. 2011. Metal Hyperaccumulation in Plants : A Review Focusing on Phytoremediation Technology. *J. of Env. Sci. and Techn.* 4 (2): 118-138.
- Sharma, S.S. and K.J. Dietz. 2006. The significance of amino acids and amino acid-derived molecule in plant responses and adaptation to heavy metal stress. *J.Exp. Bot.* 57 (4):711-726.
- Sheldon, A. R.and N. W. Menzies. 2005. The effect of copper toxicity on the growth and root morphology of Rhodes grass (*Chloris gayana* Knuth.) in resin buffered solution culture. *Plant Soil* 278:341–349.
- Siregar, L.A.M., C. L. Keng, and B. P.Lim. 2010. Pengaruh Kasein Hidrosilat dan Intensitas Cahaya terhadap Produksi Biomassa dan Alkaloid canthinone di dalam Kultur Suspensi Sel Pasak Bumi (*Eurycoma longifolia* Jack). *Makara Sains*, 14 (1): 15-21.
- Srivastava and A.K. Srivastava. 2014. Effect of elicitors and precursors on azadirachtin production in hairy root culture of *Azadirachta indica*. *Appl Biochem Biotechnol.* 172(4):2286- 97 doi: 10.1007/s12010-013-0664-6. Epub Dec 21, 2013. Abstract
- Steenis, C.G.G.J. 2003. *Flora*. Cetakan ke 9.Pradnya Paramita, Jakarta.
- Sugijanto, F. Puspasari, Herlina dan G. Indrayanto. 1998. The influence of copper and cobalt ions on the growth index and solasodine accumulation in shoot cultures of *Solanum laciniatum* Ait. *Majalah Farmasi Indonesia* 9: 123–129
- Swiader, J.M. and G.W. Ware. 2002. *Producing Vegetable Crops*, 5<sup>th</sup>ed. Danville, IL: Interstate Publishers, Inc., pp. 658
- Szafran'ska, K., M.Cvikrova, U. Kowalska, K. Go'recka, R. Go'recki, O. Martincova, K. M. Janas. 2011. Influence of copper ions on growth, lipid peroxidation, and proline and polyamines content in carrot rosettes obtained from anther culture. *Acta Physiol Plant* 33:851–859.
- Threfall , D.R. and Whitehead, I.M . 1989. The use of metal ions to induce the formation of secondary products in plant tissue culture. In: Robins RJ & Rhodes MJC (eds) *Manipulating Secondary Metabolism in Culture* (pp 51–56). Cambridge University Press, Cambridge.
- Trigiano, R. N. and Gray, D. J. 2005. *Plant Development and Biotechnology*. CRC Press, Boca Raton.
- Vatamaniuk, O.K., S. Mari, Y.U. Lu, and P.A. Rea. 2000. Mechanism of heavy metal ion activation of phytochelatin (PC) synthase. *J. Biol. Chem.* 275: 31451-31459.

- Veerporte, R. and J. Memmelink 2002. Engineering secondary metabolite production in plants. *Current Opinion in Biotechnology*. 13: 181-187.
- Victor, J.M.R., S.J. Murch, S. Krishna Raj, and P.K. Saxena. 1999. Somatic Embryogenesis and Organogenesis in Peanut: The Role of Thidiazuron and N6-Benzylaminopurine in The Induction of Plant Morphogenesis. *Plant Growth Regulation* 28: 9–15.
- Vinit-Dunand, F., D. Epron, B. Alaoui-Sossèm, and P.M. Badot. 2002. Effects of copper on growth and on photosynthesis of mature and expanding leaves in cucumber plants. *Plant Sci.* 163:53–58.
- Walter, H. 1995. The role of the apoplast in aluminium toxicity and resistance of higher plants: A review. *J. of Plant Nutr and Soil Sci.* 158 (5): 419–428.
- Wang, R., Gao, F., Guo, B.Q., Huang, J.C., Wang, L and J. Zhou. 2013. Short-term chromium-stress-induced alterations in maize leaf proteome. *Int. J. Mol. Sci.* 14:11125-11144.
- Xu, X.Y., G. Shi, J. Wang, L. Zhang, and Y. Kang. 2011. Copper-induced oxidative stress in *Alternanthera philoxeroides* Callus. *Plant Cell Tiss Organ Cult.* 106:243–251.
- Yadav, S.K. 2010. Heavy metals toxicity in plants: An overview on the role of glutathione and phytochelatins in heavy metal stress tolerance of plants. *South African J. of Botany* 76: 167–179.
- Yuan, Y, J.P. Sheng, H.D. Wang, Z.Y. Wang, and B.G. Ru. 2004. Callus induction and root differentiation from *Alternanthera philoxeroides*. *Acta Hydrobiol Sin* 28:622–628.
- Yu, Kee-Won, W. Gao, S. Son, and . Paek. 2000. Improvement of ginsenoside production by jasmonic and some other elicitor in hairy root culture of ginseng (*Panax ginseng* C.A. Meyer). *In Vitro Cell. Dev. Biol. Plant.* 36: 124-128.
- Yruela, I. 2005. Copper in plants. *Braz. J. Plant Physiol.* 17:145–156.
- Zayed, R., M. Wink, and H. El-Shamy.. 2006. *In vitro* organogenesis and alkaloid accumulation in *Datura innoxia*. *Z. Naturforsch C.* 61:560- 564.
- Zhang, L., G. Kai, B. Lu, H. Zhang, K. Tang, J. Jiang, and W. Chen. 2005. Metabolic Engineering of Tropane Alkaloid Biosynthesis in Plants. *J. Integrative Plant Biol.* 47 (2):136-143.

