

REFERENCES

- Acevedo R.A., Santos A.C., Pabatao P. (1970): A diterpene from *Tinospora rumphii* Boerl. *Philippine J Sci* 97: 269–275.
- Aeschbach R., liger L., Scott J., Murcia B.C., Butler A., Halliwell J. (1994): Antioxidant actions of thymol, carvacrol, 6-gingerol, zingerone and hydroxytyrosol. *Food Chem Toxicol* 32: 31–36.
- Akazawa H., Akihisa T., Taguchi Y., Banno N., Yoneima R., Yasukawa K. (2006): Melanogenesis inhibitory and free radical scavenging activities of diarylheptanoids and other phenolic compounds from the bark of *Acer nikoense*. *Biol Pharm Bull* 29: 1970–1972.
- Ali D., Hassan S.G., Nasrolah H. (2008): Solubility of gallic acid in methanol, ethanol, water and ethyl acetate. *J Chem Eng Data* 53: 776–778.
- Allen S.T. (1974): *Chemical Analysis of Ecological Material*. Blackwell Scientific Publication. New York, p. 313.
- Amin A., Razieh Y. (2007): *Cyperus rotundus* suppresses AGE formation and protein oxidation in a model of fructose-mediated protein glycoxidation. *Int J Biol Macromol* 41: 572–578.
- Anon C.B. (1952): The wealth of India, raw materials, vol. 3. New Delhi: Council of Scientific and Industrial Research.
- Apisariyakul A. (1984): Investigation of fractions isolated from Thai medicinal plants affecting isolated rat ileum. In: Proceedings of the 10th Conference of Science and Technology of Thailand, Chiang Mai, pp. 450–451.

- Arıcan M., Ceylan C. (1999): Metalloproteinases in canine experimental traumatic keratoconjunctivitis. *J Vet Med* 46: 527–532.
- Asbill C.S., Michniak B.B. (2000): Percutaneous penetration enhancers: local versus transdermal activity. *PSTT* 3: 36–41.
- Asselein L.M.C., Hernandez O.H., Sanchez J.R. (1990): Seasonal variation in the content of sensosides in leaves and pods of two *Cassia fistula* populations. *Phytochemistry* 29: 3095–3099.
- Banga A.K., Bose S., Ghosh T.K. (1999): Iontophoresis and electroporation: Comparisons and contrasts. *Int J Pharm* 179: 1–19.
- Bangham A.D., Standish M.M., Watkins J.C. (1965): Diffusion of univalent ions across the lamellae of swollen phospholipids. *J Mol Biol* 13: 238.
- Barry A.L., Cullis P.R. (1995): Direct NMR evidence for ethanol binding to the lipid-water interface of phospholipid bilayers. *Biochemistry* 33: 8082–8088.
- Barry B.W. (2001): Novel mechanisms and devices to enable successful transdermal drug delivery. *Eur J Pharm Sci* 14: 101–114.
- Barthakur N.N., Arnold N.P., Alli I. (1995): The Indian Laburnum (*Cassia fistula* L.) fruit: An analysis of its chemical constituents. *Plant Food Hum Nutr* 47: 55–62.
- Beall H.D., Sloan K.B. (2001): Topical delivery of 5-fluorouracil (5-Fu) by 3-alkylcarbonyl-5-Fu prodrugs. *Int J Pharm* 217: 127–137.
- Benson H.A.E. (2005): Transdermal drug delivery: Penetration enhancement techniques. *Curr Drug Delivery* 2: 23–33.
- Betageri G., Habib M. (1994): Liposomes as drug carriers. *Pharm Eng* 14: 76–77.

- Bhattarai N.K. (1993): Folk herbal remedies for diarrhoea and dysentery in central Nepal. *Fitoterapia* 64: 243–250.
- Biswas M., Biswas K., Ghosh A.K., Haldar P.K. (2009): A pentacyclic triterpenoid possessing anti-inflammatory activity from the fruits of *Dregea volubilis*. *Pharmacognosy Magazine* 5: 64–68.
- Blichmann C.W., Serup J. (1988): Assessment of skin moisture. Measurement of electrical conductance, capacitance and transepidermal water loss. *Acta Derm. Venereol* 68: 284–290.
- Bochot A., Fattal E., Gulik A. (1998): Liposomes dispersed within a thermosensitive gel: a new dosage form for ocular delivery of oligonucleotides. *Pharm Res* 15: 1364–1369.
- Bopaiah C.P., Pradhan N. (2001): Central nervous system stimulatory action from the root extract of *Plumbago zeylanica* in rats. *Phytother Res* 15: 153–156.
- Bouchet N., Laurence B., Fauconneau B. (1998): Radical scavenging activity and antioxidant properties of tannins from *Guiera senegalensis* (Combretaceae). *Phytother Res* 12: 159–162.
- Bouclier M., Cavey D., Kail N., Hensby C. (1990): Experimental models in skin pharmacology. *Pharmacol Rev* 42: 127–154.
- Bouwstra J.A., Peschier L.J., Brussee J., Bodde H.E. (1989): Transdermal drug delivery: Penetration enhancement techniques. *Int J Pharm* 52: 47–54.
- Brand R.H., Wahl A., Iversen P.L. (1998): Effects of size and sequence on the iontophoretic delivery of oligonucleotides. *J Pharm Sci* 87: 49–52.

- Brattsand R., Thalen A., Roempke K., Kallstrom L., Gruvstad E. (1982): Influence of 16 α , 17 α -acetal substitution and steroid nucleus fluorination on the topical to systemic activity ratio of glucocorticoids. *J Steroid Biochem* 16: 779–786.
- Bredt D.S., Snyder S.H. (1990): Isolation of nitric oxide synthetase, a calmodulin requiring enzyme. *Proc Natl Sci USA* 87: 682–685.
- Briganti S., Camera E., Picardo M. (2003): Chemical and instrumental approaches to treat hyperpigmentation. *Pigm Cell Res* 16: 101–110.
- Briggaman R.A., Wheeler C.E. (1975): The epidermal-dermal junction. *J Invest Dermatol* 65: 71–84.
- Brimer L., Lorentzen B., Smitt V. (1989): Evelser I Farmakognosi K-25/9. Royal Danish School of Pharmacy. Copenhagen.
- Burapadaja S., Bunchoo A. (1995): Antimicrobial activity of tannins from *Terminalia citrine*. *Planta Med* 61: 365–366.
- Carlson R.P., O'Neil-Davis L., Chang J., Lewis A.J. (1985): Modulation of mouse ear edema by cyclooxygenase and lipoxygenase inhibitors and other pharmacologic agents. *Agents Actions* 17: 197–204.
- Carmeliet P., Moons L., Herbert J.M., Crawley J., Lupu F., Lijnen R., Collen D. (1997): Urokinase but not tissue plasminogen activator mediates arterial neointima formation in mice. *Circ Res* 81: 829–839
- Castanho M.A.R.B., Santos N.C., Loura L.M.S. (1997): Separating the turbidity spectra of vesicles from the absorption spectra of membrane probes and other chromophores. *Eur Biophys J* 26: 253–259.

Cevc G. (1996): Transfersomes, liposomes and other lipid suspensions on the skin: permeation enhancement, vesicle penetration, and transdermal drug delivery.

Crit Rev. Ther Drug Carrier Syst 13: 257–388.

Cevc G., Blume G. (1992): Lipid vesicles penetrate into intact skin owing to the transdermal osmotic gradients and hydration force. *Biochim Biophys Acta* 1104: 226–232.

Cevc G., Blume G. (2001): New highly efficient formulation of diclofenac for the topical, transdermal administration in ultradeformable drug carriers, Transfersomes. *Biochem Biophys Acta* 1514: 191–205.

Cevc G., Blume G., Schatzlein A., Gebauer D., Paul A. (1997): The skin: A pathway for systemic treatment with patches and lipid-based agent carriers. *Adv Drug Rev* 18: 349–378.

Chabrier P.E., Demerle-Pallardy C., Auguet M. (1999): Nitric oxid synthase complexed with dystrophin and absent from skeletal muscle sarcolemma in Duchenne muscular dystrophy. *Cell* 82: 743–752.

Chang S.L., Hofmann G.A., Zhang L., Deftos L.J., Banga A.K. (2000): The effect of electroporation on iontophoretic transdermal delivery of calcium regulating hormones. *J Control Res* 66: 127–133.

Chen H.Y., Lin T.C., Yu K.H., Yang C.M., Lin C.C. (2003): Antioxidant and free radical scavenging activities of *Terminalia chebula*. *Biol Pharm Bull* 26: 1331–1335.

Chiang C.H., Shao C.H., Chen J.L. (1998): Effects of pH, electric and enzyme inhibitors on iontophoresis of delta sleep-inducing peptide. *Drug Devel Ind Pharm* 24: 431–438.

- Cho J.S., Kong J.Y., Jeong D.Y., Lee K.D., Lee D.U., Kang B.S. (2001): NMDA receptor-mediated neuroprotection by essential oils from the rhizome of *Acorus gramineuse*. *Life Sci* 68: 1567–1573.
- Cho Y., Kim K.H., Shim J.S., Hwang J.K. (2008): Inhibitory effects of macelignan isolated from *Myristica fragrans* HOUTT. on melanin biosynthesis. *Biol Pharm Bull* 31: 986–989.
- Choi C.W., Kim S.C., Hwang S.S., Choi B.K., Ahn H.J., Lee M.Y., Park S.H., Kim S.K. (2002): Antioxidant activity and free radical scavenging capacity between Korean medicinal plants and flavonoids by assay-guided comparison. *Plant Sci* 163: 1161–1168.
- Choi M.J., Maibach H.I. (2005): Elastic vesicles as topical/transdermal drug delivery systems. *Int J Cos Sci* 27: 211–221.
- Clarys P., Alewaeters K., Lambrecht R., Barel A.O. (2000) Skin color measurements: comparison between three instruments: the Chromameter, the Derma Spectrometer and the Mexameter. *Skin Res Technol* 6: 230–238.
- Conrad J., Vogler B., Reeb S., Klaiber I., Papajewski S., Roos G., Vasquez E., Setzer M.C., Kraus W. (2001): Isoterchebulin and 4,6-*O*-isoterchebuloyl-D-glucose, novel hydrolyzable tannins from *Terminalia macroptera*. *J Nat Prod* 64: 294–299.
- Cuellar M.J., Giner R.M., Recio M.C., Mánez S., Rios J.L. (2001): Topical anti-inflammatory activity of some Asian medicinal plants used in dermatological disorders. *Fitoterapia* 72: 221–229.
- Dayan N., Touitou E. (2000): Carriers for skin delivery of trihexyphenidyl HCl: ethosomes vs. liposomes. *Biomaterials* 21:1879–1885.

Davis A.F., Hadgraft J. (1991): Effect of supersaturation on membrane transport: Hydrocortisone acetate. *Int J Pharm* 76: 1–8.

De Young L.M., Kheifets J.B., Ballaron S.J., Young J.M. (1989): Edema and cell infiltration in the phorbol ester-treated mouse ear are temporally separate and can be differentially modulated by pharmacological agents. *Agents Actions* 26: 335–341.

Decker E.A., Welch B. (1990): Role of ferritin as a lipid oxidation catalyst in muscle food. *J Agric Food Chem* 38: 674–677.

Dinda B., Saha S. (1989): A new binaphthoquinone from *Plumbago zeylanica* Linn. *Indian J Chem* 28: 984–986.

Dinesh M., Vaibhav D., Abhay A., Saraf D.K., Jain N.K. (2006): Elastic liposomes mediated transcutaneous immunization against hepatitis B. *Vaccine* 24: 4847–4855.

Draize J.H., Woodard G., Calvery H. (1944): Methods for the study of irritation and toxicity of substances applied to the skin and mucous membranes. *J Pharmacol* 82: 377.

Doukas A.G., McAuliffe D.J., Lee S., Venugopalan V., Flotte T.J. (1995): Physical factors involved in stress-wave-induced cell injury: The effect of stress gradient. *Ultrasound Med Biol* 21: 961–967.

Dobrev H. (1998): Use of cutometer to assess dermal oedema in erysipelas of the lower legs. *Skin Res Technol* 4: 155–159.

Dobrev H.P. (2002): A study of human skin mechanical properties by means of cutometer. *Folia Med (Plovdiv)* 44: 5–10.

- Dubey V., Mishra D., Jain N.K. (2007): Melatonin loaded ethanolic liposomes: Physico-chemical characterization and enhanced transdermal delivery. *Eur J Pharm Biopharm* 67: 398–405.
- El-Dakhakhny M. (1963): Studies on the chemical constitution of the Egyptian *Nigella sativa* L. seeds. II. The essential oil. *Planta Med* 12: 465–470.
- El-Domyati M., Attia S., Saleh F., Brown D., Birk D.E., Gasparro F., Ahmad H., Uitto J. (2002): Intrinsic aging vs. photoaging: a comparative histopathological, immunohistochemical and ultrastructural study of skin. *Exp Dermatol* 11: 398–405.
- Elias P.M. (1983): Epidermal lipids, barrier function, and desquamation. *J Invest Dermatol* 80: 44–49.
- El Maghraby G.M., Williams A.C., Barry B.W. (2000): Oestradiol skin delivery from ultradeformable liposomes: Refinement of surfactant concentration. *Int J Pharm* 196: 63–74.
- El Maghraby G.M.M., Williams A.C., Barry B.W. (2001): Skin delivery of 5-fluorouracil from ultradeformable and standard liposomes *in vitro*. *J Pharm Pharmacol* 53: 1069–1077.
- Elsayed M.A., Ossama Y.A., Viviane F.N., Nawal M.K. (2006): Deformable liposomes and ethosomes: Mechanism of enhanced skin delivery. *Int J Pharm* 322: 60–66.
- Elsner P., Wilhelm D., Maibach H.I. (1990): Mechanical properties of human forearm and vulvar skin. *Br J Dermatol* 122: 607–614.

- Escoffier C., Rigal J., Rochefort A., Vasselet R., Leveque J.L., Agache P.G. (1989): Age-related mechanical properties of human skin: An *in vivo* study. *J Invest Dermatol* 93: 353–357.
- Fang J.Y., Hong C.T., Chiu W.T., Wang Y.Y. (2001): Effect of liposomes and niosome on skin permeation of enoxacin. *Int J Pharm* 219: 61–72.
- Farahmand S., Maibach H.I. (2009): Transdermal drug pharmacokinetics in man: Interindividual variability and partial prediction. *Int J Pharm* 367: 1–15.
- Filleur F., Le Bail J.C., Duroux J.L., Simon A., Chulia A.J. (2001) Antiproliferative, antiaromatase, anti-17 β -HSD and antioxidant activities of lignans isolated from *Myristica argentea*. *Planta Med* 67: 700–704.
- Fischer T.W., Wigger-Alberti W., Elsner P. (1999): Direct and nondirect measurement techniques for analysis of skin surface topography. *Skin Pharmacol Appl Skin Physiol* 12: 1–11.
- Fisher G.J., Quan T., Purohit T., Shao Y., Cho M.K., He T., Varani J., Kang S., Voorhees J.J. (2009): Collagen fragmentation promotes oxidative stress and elevates matrix metalloproteinase-1 in fibroblasts in aged human skin. *Am J Pathol* 174: 101–114.
- Florence A.T., Baillie A.J. (1989): Non-ionic surfactant vesicles, alternatives to liposomes in drug delivery. In *Novel Drug Delivery and Its Therapeutic Application* pp. 281–296.
- Flotte T.J., Lee S., Zhang H., McAuliffe D.J., Douki T., Doukas A.G. (1995): Laser-induced stress waves: applications for molecular delivery. In: Jacques SL, (ed.) *Laser–Tissue Interactions VI Proc SPIE* 2391: 202–207.

Friberg S.E., Osborne D.W. (1985): Small angle X-ray diffraction patterns of stratum corneum and a model structure for its lipids. *J Dispersi Sci Technol* 6: 485-495.

Friedland J.A., Buchel E.W. (2000): Skin care and the topical treatment of aging skin. *Clin Plastic Surg* 27: 501–506.

Friedman P.M., Skover G.R., Payonk G., Kauvar A.N.B., Geronemus R.G. (2002): 3D *in-vivo* optical skin imaging for topographical quantitative assessment of non-ablative laser technology. *Dermatol Surg* 28: 199–204.

Frosch P.J. (1992): Cutaneous irritation. In: Rycroft RJG, editor. Text book of contact dermatitis. Berlin: Springer-Verlag, p. 54.

Fuchs A.F. (1989): The visual system: Optics, psychophysics and the retina. In: Patton HD eds. Textbook of Physiology, 21st ed. W.B.Saunders Co, Philadelphia, pp. 422–426.

Fujimura T., Haketa K., Hotta M., Kitahara T. (2007): Loss of skin elasticity precedes to rapid increase of wrinkle levels. *J Dermatol Sci* 47: 233–239.

Glavas-Dodov M., Goracinova K., Mladenovska K. (2002): Release profile of lidocaine HCl from topical liposomal gel formulation. *Int J Pharm* 242: 381–384.

Godin B., Touitou E. (2004): Mechanism of bacitracin permeation enhancement through the skin and cellular membranes from an ethosomal carrier. *J Control Release* 94: 365–379.

Gogly B., Groult N., Hornebeck W., Godeau G., Pellat B. (1998): Collagen zymography as a sensitive and specific technique for the determination of subpicogram levels of interstitial collagenase. *Anal Biochem* 255: 211–216.

- Gottlieb H.E., Kumar S., Sahai M., Ray A.B. (1991): Ethyl brevifolin carboxylate from *Flueggea microcarpa*. *Phytochemistry* 30: 2435–2438.
- Gross J., Lapiere C.M. (1962): Collagenolytic activity in amphibian tissues: a tissue culture assay. *Proc Natl Acad Sci USA* 48: 1014–1022.
- Guan W., Li S., Yan R., Tang S., Quan C. (2007) Comparison of essential oils of clove buds extracted with supercritical carbon dioxide and other three traditional extraction methods, *Food Chem* 101: 1558–1564.
- Gulcin I. (2006): Antioxidant and antiradical activities of L-carnitine. *Life Sci* 78: 803–811.
- Gunaherath G.M.K.B., Gunatilaka A.A.L., Sultanbawa M.U.S., Salasubramaniam S. (1983): 1,2(3)-Tetrahydro-3,30-biplumbagin: a naphthalenone and other constituents from *Plumbago zeylanica*. *Phytochemistry* 22: 1245–1247.
- Guo J., Ping Q., Sun G., Jiao C. (1989): Lecithin vesicular carriers for transdermal delivery of cyclosporine A. *Int J Pharm* 194: 201–207.
- Gupta N., Vivek M., Amit R., Praveen D., Sunil M., Sanyog J. (2005): Non-invasive vaccine delivery in transfersomes, niosomes and liposomes: a comparative study. *Int J Pharm* 293: 73–82.
- Guy R.H., Hadgraft J. (1989): *Transdermal Drug Delivery: Developmental Issues And Research Initiatives*, Marcel Dekker.
- Hagerman A.E., Butler L.G. (1989): Choosing appropriate methods and standards for assaying tannin. *J Chem Ecol* 15: 1795–1810.
- Haddock E.A., Gupta R.K., Al-Shafi S.M.K., Haslam E. (1982): The metabolism of gallic acid and hexahydroxydiphenic acid in plants. Part1. Introduction. Naturally occurring galloyl esters. *J Chem Soc Perkin Trans1*: 2515–2524.

Halliwel B. (2008): Are polyphenols antioxidants or pro-oxidants? What do we learn from cell culture and *in vivo* studies. *Arch Biochem Biophys* 476: 107–112.

Han G., Ma Y., Li C. (1992): The studies of natural PAF antagonistic neolignans from Piper genus and their structure-activity relationships. *Beijing Yike Daxue Xuebo* 24: 347–350.

Handjani-Vila R.M., Ribier A., Rondot B., Vanlerberghe G. (1979): Dispersion of lamellar phases of non-ionic lipids in cosmetic products. *Int J Cosmet Sci* 1: 303–314.

Harborne J.B. (2005): *Phytochemical Methods. Analysis. A Guide to Modern Techniques of Plant* (third ed.), Springer International, India.

Harbone J.R. (1976): *Phytochemical Methods. A Guide to Modern Techniques of Plant Analysis*. Charpan & Hall, London, p. 78.

Haslam E. (1996): Natural polyphenols (vegetable tannins) as drugs: Possible modes of action. *J Nat Prod* 59: 205–215.

Hatanaka T., Shimoyama M., Sugibayashi K., Morimoto Y. (1993): Effect of vehicles on the skin permeability of drugs: polyethylene glycol 400-water and ethanol-water binary solvents. *J Control Release* 23: 247–260.

Hatzis J. (2004): The wrinkle and its measurement-a skin surface profilometric method. *Micron* 35: 201–219.

He X., Bernat M.W., Lian L., Lin L. (1998): High performance liquid chromatography-electrospray mass spectrometric analysis of pungent constituents of ginger, *J Chromatogr A* 796: 327–334.

- Ho K.Y., Huang J.S., Tsai C.C., Lin T.C., Hsu Y.F., Lin C.C. (1999): Antioxidant activity of tannin components from *Vaccinium vitisidaea* L. *J Pharm Pharmacol* 51: 1075–1078.
- Hoffman R.M. (2000): The hair follicle as a gene therapy target. *Nature Biotechnol* 18: 20–21.
- Hong K., Park S. (1990): Melamine resin microcapsules containing fragrant oil: synthesis and characterization. *Mat Chem Phys* 58: 128–131.
- Horwitz A.L., Hance A.J., Crystal R.G. (1977): Granulocyte collagenase: selective digestion of type I relative to type III collagen. *Proc Natl Acad Sci USA* 74: 897–901.
- Hostettman K., Marston A. (1995): Saponins. Cambridge University Press, United Kingdom.
- Huang Y., Ho S.H., Lee H.C., Yap Y.L. (2002) Insecticidal properties of eugenol, isoeugenol and methyleugenol and their effects on nutrition of *Sitophilus zeamais* Motsch. (Coleoptera: Curculionidae) and *Tribolium castaneum* (Herbst) (Coleoptera: Tenebrionidae). *J Stored Prod Res* 38: 403–412.
- Ishii R., Saito K., Horie M., Shibano T., Kitanaka S. and Amano F. (1999): Inhibitory effects of hydrolysable tannin from *Melastoma dodecandrum* Lour. On nitric oxide production by a murine macrophage-like cell line, RAW 264.7, activated with lipopolysaccharide and interferon-gamma. *Biol Pharm Bull* 22: 647–653.
- Iervolino M., Raghavan S.L., Hadgraft J. (2000): Membrane penetration enhancement of ibuprofen using supersaturation. *Int J Pharm* 198: 229–238.
- Isogai A., Suzuki A., Tamura S. (1973): Structure of dimeric phenoxypropanoids from *Myristica fragrans*. *Agric Biol Chem* 37: 193–194.

- Izzo A.A., Ernst E. (1992): Interaction between herbal medicines and prescribed drugs: a systematic review. *Drugs* 6: 2163–2175.
- Jacobsen F.E., Lewis J.A., Cohen S.M. (2007): The design of inhibitors for medicinally relevant metalloproteins. *Chem Med Chem* 2: 152–171.
- Jain S., Jain P., Umamaheshwari R.B., Jain N.K. (2003): Transfersomes: a novel vesicular carrier for enhanced transdermal delivery: development, characterization and performance evaluation. *Drug Dev Ind Pharm* 29:1013–1026.
- Janssen J., Laekeman G.M., Peiters L.A., Totte J., Herman A.G., Vlietinck A.J. (1990): Nutmeg oil: identification and quantification of its most active constituents as inhibitors of platelet aggregation. *J Ethnopharmacol* 29: 179–188.
- Jennifer S.B., David A.C., Grady G., Tonalee C.K. (1988): Aqueous thermal degradation of gallic acid. *Geochim Cosmochim Acta* 52: 341–344.
- Johnson M.E., Mitragotri S., Patel A. (1996): Synergistic effects of chemical enhancers and therapeutic ultrasound on transdermal drug delivery. *J Pharm Sci* 85: 670–679.
- Jossang A., Pousset J.L., Bodo B. (1994): Combreglutinin, a hydrolyzable tannin from *Combretum glutinosum*. *J Nat Prod* 57: 732–737.
- Juang L.J., Sheu S.J., Lin T.C. (2004): Determination of hydrolyzable tannins in the fruit of *Terminalia chebula* Retz by high-performance liquid chromatography and capillary electrophoresis. *J Sep Sci* 27: 718–724.
- Jung B.S., Shin M.K. (1998): Encyclopedia of illustrated Korean natural drugs, Araliaceae. In: Kwon, S.B. (Ed.), Young Lim Sa, Seoul, pp. 439–443.

Karg E., Odh G., Wittbjer A., Rosengren E., Rorsman H. (1993): Hydrogen peroxide as inducer of elevated tyrosinase level in melanoma cells. *J Invest Dermatol* 100: 209–213.

Kashiwada Y., Toshika K., Chen R., Nonaka G., Nishioka I. (1990): Tannins and related compounds. XCIII. Occurrence of enantiomeric proanthocyanidins in the Leguminosae plants, *Cassia fistula* L.; *Cassia javanica* L. *Chem Pharm Bull* 38: 888–893.

Keister J.C., Kasting G.B. (1986): The use of transient diffusion to investigate transport pathways through skin. *J Control Release* 4: 111–117.

Kemken J., Ziegler A., Muller B.W. (1992): Influence of supersaturation on the thermodynamic effect of bupranolol after dermal administration using microemulsion and vehicle. *Pharm Res* 9: 554–558.

Klika K.D., Saleem A., Sinkkonen J., Kähkönen M., Loponen J., Tähtinen P., Pihlaja K. (2004): The structural and conformational analyses and antioxidant activities of chebulinic acid and its thrice-hydrolyzed derivative, 2,4-chebuloyl- β -D-glucopyranoside, isolated from the fruit of *Terminalia chebula*. *ARKIVOC* 7: 83–105.

Kirjavainen M., Urtti A., Valjakka-Koskela R., Kiesvaara J., Monkkonen J. (1999): Liposome-skin interactions and their effects on the skin permeation of drugs. *Eur J Pharm Sci* 7: 279–286.

Kirtikar R.K., Basu D.B. (1935): Indian Medicinal Plants, Volume 3, second ed. International Book Distributor, Dehradun, India, pp. 1635–1636.

- Kim S., Kim Y., Kim J.E., Cho K.H., Chung J.H. (2007) Berberine inhibits TPA-induced MMP-9 and IL-6 expression in normal human keratinocytes. *Phytomedicine* 15: 340–347.
- Kleiner D.E., Stetler-Stevenson W.G. (1994): Quantitative zymography: detection of picogram quantities of gelatinases. *Anal Biochem* 218: 325–329.
- Kletsas D. (2003): Aging of fibroblasts. In: Kaul, S.C., Wadhwa, R. (Eds.), *Aging of Cells in and Outside the Body*. Kluwer Academic Publishers, Great Britain, pp. 27–46.
- Knutson K., Krill S.L., Zhang J. (1990): Solvent-mediated alterations of the stratum corneum. *J Control Release* 11: 93–103.
- Kucharz E.J. (1992) *The Collagens: Biochemistry and Pathophysiology*, Springer-Verlag, Berlin, pp. 7–29.
- Kuo Y.H. (1989): Studies on several naturally occurring lignans. *Gaoxiong Yi Xue Ke Xue Za Zhi* 5: 621–624.
- Lantz M.S., Ciborowski P. (1994): Zymographic techniques for detection and characterization of microbial proteases. *Methods Enzymol* 235: 563–594.
- Lasic D.D. (1995): Chapter 10 Applications of liposomes. In : Lipowsky R., Sackmann E., eds. *Handbook of Biological Physics., Liposome Technology*, Inc. California, USA. 1: 491–519.
- Lasic D., Weiner N., Riaz M., Martin F. (1998): Liposomes. In: Lieberman A, Rieger M, Banker G, editors. *Pharmaceutical Dosage Forms: Disperse Systems*. New York: Marcel Dekker pp. 8–43.

- Lee S., Kollias N., McAuliffe D.J., Flotte T.J., Doukas A.G. (1999): Topical drug delivery in humans with a single photomechanical wave. *Pharm Res* 16: 1717–1721.
- Lee H.K., Seo Y.K., Baek J.H., Koh J.S. (2008): Comparison between ultrasonography (Dermascan C version 3) and transparency profilometry (Skin Visiometer SV600). *Skin Res Technol* 14: 8–12.
- Lee S.H., Ryu S.Y., Choi S.U., Lee C.O., No Z., Kim S.K., Ahn J.W. (1995): Hydrolysable tannins and related compound having cytotoxic activity from the fruits of *Terminalia chebula*. *Arch Pharm Res* 18: 118–120.
- Lemmens R.H.M.J., Bunyapraphatsara N. (1999): Plant Resources of South-East Asia: Medicinal and Poisonous Plants. Leiden: Backhuys Publishers, the Netherlands. pp. 181–184.
- Lemmens R.H.M.J., Bunyapraphatsara N. (2003): Plant resources of South-East Asia No.12 (3): Medicinal and poisonous plants. Backhuys Publishers, Leiden, p. 3.
- Letelier M.E., Berríos A.M., Troncoso J.C., Sandoval J.J., Holst M., Palma K., Montoya M., Miranda D., Lira V.G. (2008): DPPH and oxygen free radicals as pro-oxidant of biomolecules. *Toxicol In Vitro* 22: 279–286.
- Li F., Conroy E., Visscher M., Wickett R.R. (2001): The ability of electrical measurements to predict skin moisturization II: Correlation between one-hour measurements and long-term results. *J Cosmet Sci* 52: 23–33.
- Likhitwitayawuid K., Ruangrunsi N., Lange G.L., Decicco C.P. (1987): Structural elucidation and synthesis of new components isolated from *Piper sarmentosum* (Piperaceae). *Tetrahedron* 43: 3689–3694.

- Lin L.C., Yang L.L., Chou C.J. (2003) Cytotoxic naphthoquinones and plumbagic acid glucosides from *Plumbago zeylanica*. *Phytochemistry* 62: 619–622.
- Liyana-Pathirana C.M., Shahidi F (2007): Antioxidant and free radical scavenging activities of whole wheat and milling fractions. *Food Chem* 101: 1151–1157.
- Lodzki M., Godin B., Rakou L. (2003): Cannabidiol transdermal delivery and anti-inflammatory effect in murine model. *J Control Release* 93: 377–387.
- Long L.H., Clement M.V., Halliwell B. (2000): Artifacts in cell culture: rapid generation of hydrogen peroxide on addition of (-)-epigallocatechin, (-)-epigallocatechin gallate, (+)-catechin and quercetin to commonly used cell culture media. *Biochem Biophys Res Commun* 273: 50–53.
- Ma W., Wlaschek M., Tantcheva-Poór I., Schneider L.A., Naderi L., Razi-Wolf Z., Schüller J., Scharffetter-Kochanek K. (2001): Chronological ageing and photoageing of the fibroblasts and the dermal connective tissue. *Clin Exp Dermatol* 26: 592–599.
- Magdassi S. (1997): Delivery systems in cosmetics. *Colloid Surface Physicochem Eng Aspect* 123: 671–679.
- Maity T.K., Mandal S.C., Mukherjee P.K., Saha K., Das J., Pal M., Saha B.P. (1998): Studies on antiinflammatory effect of *Cassia tora* leaf extract (fam. Leguminosae). *Phytother Res* 12: 221–223.
- Manosroi A., Khositsuntiwong N., Gotz F., Werner R.G., Manosroi J. (2009): Transdermal enhancement through rat skin of luciferase plasmid DNA entrapped in elastic nanovesicles. *J Liposome Res* 19: 91–98.

Manosroi A., Jantrawut P., Manosroi J. (2008): Anti-inflammatory activity of gel containing novel elastic niosomes entrapped with diclofenac diethylammonium. *Int J Pharm* 360: 156–163.

Manosroi A., Khositsuntiwong N., Gotz F., Werner R.G., Manosroi J. (2009): Transdermal enhancement through rat skin of luciferase plasmid DNA loaded in elastic nanovesicles *J Liposome Res* 19: 91–98.

Manosroi A., Jantrawut P., Akihisa T., Manosroi W., Manosroi J. (2010a): *In vitro* anti-aging activities of *Terminalia chebula* Retz. (Combretaceae) gall extract. *Pharm Biol* 48: 469–481.

Manosroi A., Jantrawut P., Akazawa H., Akihisa T., Manosroi J. (2010b): Biological activities of phenolic compounds isolated from galls of *Terminalia chebula* Retz. (Combretaceae). *Nat Prod Res* 24: 1915–1926.

Manosroi A., Jantrawut P., Akazawa H., Akihisa T., Manosroi W., Manosroi J. (2010c): Transdermal absorption enhancement of gel containing elastic niosomes loaded with gallic acid from *Terminalia chebula* galls. *Pharm Biol*, In press.

Manosroi J., Manosroi A., Rungruangsrri U. (2006): Translation of Lanna medicinal plant recipes for research and development of modern pharmaceuticals and the understanding of the Lanna Thai cultures/histories. *CMU Journal* 5: 437–441.

Marina G., Daniela C., Michele T., Eugenia C. (2006): Deformable Liposomes as Topical Formulations Containing α -Tocopherol. *J Disp Sci & Tech* 27: 703–713.

McAllister D.V., Allen M.G., Prausnitz M.R. (2000): Microfabricated microneedles for gene and drug delivery. *Annu Rev Biomed Eng* 2: 289–313.

- McCroskery P.A., Richards J.F., Harris J. (1975): Purification and characterization of a collagenase extracted from rabbit tumours. *Biochem J* 152: 131–142.
- McGaw L.J., Jager A.K., Staden J. (2002): Isolation of α -asarone, an antibacterial and anthelmintic compound from *Acorus calamus* in South Africa. *S Afr J Bot* 68: 31–35.
- McLaughlin S.G., Szabo G., Eisenman G. (1971): Divalent ions and the surface potential of charged phospholipid membranes. *J Gen Physiol* 58: 667–87.
- Megrab N.A., Williams A.C., Barry B.W. (1995) Oestradiol permeation across human skin, silastic and snake skin membranes: the effects of ethanol/water co-solvent systems. *Int J Pharm* 116: 101–112.
- Meurer R., Opas E.E., Humes J.L. (1988): Effects of cyclooxygenase and lipoxygenase inhibitors on inflammation associated with oxazolone-induced delayed hypersensitivity. *Biochem Pharmacol* 37: 3511–3514.
- Mezei M., Gulasekharam V. (1980): Liposomes -A selective drug delivery system for the topical route of administration. *Life Sci* 26: 1473–1477.
- Michael J. (2004): Quinoline, quinazoline and acridone alkaloids. *Nat Prod Rep* 21: 650–668.
- Miguel A.R.B.C., Nuno C., Santos Luís M.S.L. (1997): Separating the turbidity spectra of vesicles from the absorption spectra of membrane probes and other chromophores. *Eur Biophys J* 26: 253–259.
- Mimaki Y., Fukushima M., Yokosuka A., Sashida Y., Furuya S., Sakagami H. (2001): Triterpene glycosides from the roots of *Sanguisorba officinalis*. *Phytochemistry* 57: 773–779.

- Mitragotri S., Blankschtein D., Langer R. (1995): Ultrasound-mediated transdermal protein delivery. *Science* 269: 850–853.
- Monif T., Malhotra A.K., Kapoor V.P. (1992): *Cassia fistula* seed galactomannan: potential binding agent for pharmaceutical formulation. *Indian J Pharm Sci* 54: 234–240.
- Moser K., Kriwet K., Naik A., Kalia Y.N., Guy R.H. (2001): Passive skin penetration enhancement and its quantification *in vitro*. *Eur J Pharm Biopharm* 52: 103–112.
- Mosmann T. (1983): Rapid colorimetric assay for cellular growth and survival: application to proliferation and cytotoxicity assays. *J Immunol Methods* 65: 55–63.
- Murthy S.N. (1999): Magnetophoresis: an approach to enhance transdermal drug diffusion, *Pharmazie* 54: 377–379.
- Murthy S.N., Hiremath S.R. (1999): Effect of magnetic field on the permeation of salbutamol sulphate, *Indian Drugs* 36: 663–664.
- Murthy S.N., Hiremath S.R. (2000): Physical and chemical permeation enhancers in transdermal delivery of terbutaline sulphate. *AAPS PharmSciTech* 2: E-TN1.
- Namdeo A., Jain N.K. (1996): Niosomes as drug carriers. *Ind J Pharm Sci* 58: 41–46.
- Natella F., Nardini M., Di Felice M., Scaccini C. (1999): Benzoic and cinnamic acid derivatives as antioxidants: structure-activity relation. *J Agric Food Chem* 47: 1453–1459.
- Navickene H.M.D., Alecio A.C., Kato M.J., Bolzani V.S., Young M.C.M., Cavaleiro A.J., Furlan M. (2000): Antifungal amides from *Piper hispidum* and *Piper tuberculatum*. *Phytochemistry* 55: 621–626.

- Nerya O., Vaya J., Musa R., Izrael S., Ben-Arie R., Tamir S. (2003): Glabrene and isoliquiritigenin as tyrosinase inhibitors from licorice roots. *J Agric Food Chem* 51: 1201–1207.
- Nguyen A.T., Malonne H., Duez P., Fastre R., Vanhaelen M., Fontaine J. (2004): Cytotoxic constituents from *Plumbago zeylanica*. *Fitoterapia* 75: 500–504.
- Niamsa N., Chantrapromma K. (1983): Chemical constituents of *P. sarmentosum* Roxb. Songklanakarin *J Sci Technol* 5: 151–152.
- Ohira S., Hasegawa T., Hyashi K.I., Hoshino T., Takaoka D., Nozaki H. (1998): Sesquiterpenoids from *Cyperus rotundus*. *Phytochemistry* 47: 1577–1581.
- Oikarinen A. (1990): The aging of skin: chronoaging versus photoaging. *Photodermatol Photoimmunol Photomed* 7: 3–4.
- Onwukaeme D.N., Ikuegbvweha T.B., Asonye C.C. (2007): Evaluation of phytochemical constituents, antibacterial activities and effect of exudates of *Pycnanthus angolensis* Weld Warb (Myristicaceae) on corneal ulcers in rabbits. *Trop J Pharm Res* 6: 725–730.
- Pachaly P., Adnan A.Z. (1989): The structure of tinocrisposide, a bitter furanoditerpene glucoside from *Tinospora crispa*. *Planta Med* 55: 632–637.
- Papazisis K.T., Geromichalos G.D., Dimitriadis K.A., Korsaris A.H. (1997): Optimization of the sulforhodamine B colorimetric assay. *J Immunol Methods* 208: 151–158.
- Paolino D., Lucania G., Mardente D., Alhaique F., Fresta M. (2005): Ethosomes for skin delivery of ammonium glycyrrhizinate: *in vitro* percutaneous permeation through human skin and *in vivo* anti-inflammatory activity on human volunteers. *J Control Release* 106: 99–110.

- Parmar V.S., Jain S.C., Bisht K.S., Jain R., Taneja P., Jha A., Tyagi O.D., Prasad A.K., Wengel J., Olsen C.E., Boll P.M. (1997): Phytochemistry of the genus *Piper*. *Phytochemistry* 46: 597–673.
- Pellett M.A., Davis A.F., Hadgraft J. (1994): Effect of supersaturation on membrane transport: Piroxicam. *Int J Pharm* 111: 1–6.
- Perrett S., Whitfield P.J. (1995): Anthelmintic and pesticidal activity of *Acorus gramineus* (Araceae) is associated with phenylpropanoid asarones. *Phytother Res* 9: 405–409.
- Piez K.A. (1985) Collagen, in: J.I. Kroschwitz (Ed.), *Encyclopedia of Polymer Science and Engineering*, Wiley, New York, pp. 699–727.
- Plessis J., Egbaria K., Weiner N. (1992): Influence of formulation factors on the deposition of liposomal components into the different strata of the skin. *J Soc Cosmet Chem* 43: 93–100.
- Prakash A. (2001): The BP and EP microbial limit test. In: Clontz L, ed. *Microbial limit and bioburden tests: Validation approaches and global requirements*, CRC press. 19: 1–6.
- Prausnitz M.R., Bose V.G., Langer R. (1995): Electroporation. In: *Percutaneous penetration enhancers*. Edited by Smith EW, Maibach HI. CRC Press pp. 393–405.
- Proestos C., Chorianopoulos N., Nychas G.J.E., Komaitis M. (2005): RP-HPLC analysis of the phenolic compounds of plant extracts. Investigation of their antioxidant capacity and antimicrobial activity. *J Agric Food Chem* 53: 1190–1195.

Rahman M.S., Anwar M.N. (2007): Antimicrobial activity of crude extract obtained from the root of *Plumbago zeylanica*. *Bangladesh J Microbiol* 24: 73–75.

Record I.R., Dreosti I.E., Konstantinopoulos M., Burckley R.A. (1991): The influences of topical and systemic vitamin E on ultraviolet light-induced skin damage in hairless mice. *Nutr Cancer* 16: 219–226.

Reddy I.K., Kommuru T.R., Zaghloul A.A.A., Khan M.A. (2000): Chirality and its implications in transdermal drug development. *Crit Rev Ther Drug Carrier Syst* 17: 285–325.

Rice-Evans C.A., Miller N.J., Paganga G. (1996): Structure-antioxidant activity relationships of flavonoids and phenolic acids. *Free Radic Biol Med* 20: 933–956.

Riviere J.E., Heit M.C. (1997): Electrically-assisted transdermal drug delivery. *Pharm. Res* 14: 687–697.

Roberts M.S., Anderson R.A., Swarbrick J. (1997): Permeability of human epidermis to phenolic compounds. *J Pharm Pharmacol* 29: 677–683.

Roberts M.S., Walker M. (1993): In *Pharmaceutical Skin Penetration Enhancement*, Walters KA, Hadgraft J, Eds. Marcel Dekker: New York. pp. 1–30.

Robertson A.R. (1977): The CIE 1976 color-difference formulae. *COLOR Res Appl* 2: 7–11.

Ruel-Gariepy E., Leclair G., Hildgen, P. (1994): Thermosensitive chitosan-based on hydrogel containing liposomes for the delivery of hydrophilic molecules. *J Control Release* 30: 1–15.

- Sadhu S.K., Okuyama E., Fujimoto H., Ishibashi M. (2003): Separation of *Leucas aspera*, a medicinal plant of Bangladesh, guided by prostaglandin inhibitory and antioxidant activities. *Chem Pharm Bull* 51: 595–598.
- Sahu N., Pande N., Mandal N., Banerjee S., Koike K., Nikaido T. (2002): Polyoxypregnane glycosides from the flowers of *Dregea volubilis*. *Phytochemistry* 61: 383–388.
- Saleem A., Husheem M., Harkonen P., Pihlaja K. (2002): Inhibition of cancer cell growth by crude extract and phenolics of *Terminalia chebula* Retz. fruit. *J Ethnopharmacol* 81: 327–336.
- Salem M.L. (2005): Immunomodulatory and therapeutic properties of the *Nigella sativa* L. seed. *Int Immunol Pharmacol* 5: 1749–1770.
- Santini J.T., Cima M.J., Langer R. (1999): A controlled-release microchip. *Nature* 397: 335–338.
- Savic S., Tamburic S., Savic M., Cekic N., Milic J., Vuleta G. (2004): Vehicle-controlled effect of urea on normal and SLS-irritated skin. *Int J Pharm* 271: 269–280.
- Scalia S., Villani S., Casolari A. (1999): Inclusion complexation of the sunscreen agent 2-ethylhexyl-*p*-dimethylaminobenzoate with hydroxypropyl-cyclodextrin: effect on photostability. *J Pharm Pharmacol* 51: 1367–1374.
- Schaefer H., Redelmeier T.E. (1996): Skin Barrier: Principles of Percutaneous Absorption, Karger, Basel.
- Schreier H., Bouwstra J. (1994) Liposomes and niosomes as topical drug carriers: dermal and transdermal drug delivery. *J Controlled Release* 30: 1–15.

- Schulz R. (2007): Intracellular target of matrix metalloproteinase assisted triggered release of liposomal contents. *Bioconjugate Chem* 19: 57–64.
- Sekiwa Y., Kubota K., Kobayashi A. (2000): Isolation of novel glucosides related to gingerdiol from ginger and their antioxidative activities. *J Agric Food Chem* 48: 373–377.
- Serup J., Keiding J., Fullerton A., Gnidecka M., Gnidecki R. (1995): High-frequency ultrasound examination of skin: introduction and guide. In: Serup J, Jemec GBE, eds. Handbook of non-invasive methods and the skin. Boca Raton: CRC Press: pp. 239–256.
- Shimizu K., Kondo R., Sakai K., Lee S., Sato H. (1998): The inhibitory components from *Artocarpus incisus* on melanin biosynthesis. *Planta Med* 64: 408–412.
- Skehan P., Storeng R., Scudiero D., Monks A., McMahon J., Varren J.T., Bokesch H., Kenney S., Boyd M. (1990): New colorimetric cytotoxicity assay for anticancer-drug screening. *J NCI* 82: 1107–1112.
- Silpasuwon S. (1979): Studies of the effects of some medicinal plants on growth of some bacteria in the family Enterobacteriaceae. MS Thesis, Chiangmai University, Thailand.
- Sinha V.R., Kaur M.P. (2000): Permeation enhancers for drug delivery. *Drug Devel Ind Pharm* 26: 1131–1140.
- Sinico C., De Logu A., Lai F., Valenti D., Manconi M., Loy G., Bonsignore L., Maria Fadd A. (2005): Liposomal incorporation of *Artemisia arborescens* L. essential oil and *in vitro* antiviral activity. *Eur J Pharm Biopharm* 59: 161–168.

- Smith J.C., Irwin W.J. (2000): Ionisation and the effect of absorption enhancers on transport of salicylic acid through silastic rubber and human skin. *Int J Pharm* 210: 69–82.
- Snoek-van Beurden P.A., Von den Hoff J.W. (2005): Zymographic techniques for the analysis of matrix metalloproteinases and their inhibitors. *Biotechniques* 38: 73–83.
- Song Y.K., Kim C.K. (2006): Topical delivery of low molecular weight heparin with surface charged flexible liposomes. *Biomaterials* 27: 271–280.
- Spigno D., De Faveri D.M. (2007): Antioxidants from grape stalks and marc: influence of extraction procedure on yield, purity and antioxidant power of the extracts. *J Food Eng* 78: 793–801.
- Stanojevic M., Stanojevic Z., Jovanovic D., Stojiljkovic M. (2004): Ultraviolet radiation and melanogenesis. *Arch Oncol* 12: 203–205.
- Sternlicht M.D., Werb Z. (2001): How matrix metalloproteinases regulate cell behaviour. *Annu Rev Cell Dev Biol* 17: 463–516.
- Stott P.W., Williams A.C., Barry B.W. (2001): Mechanistic study into the enhanced transdermal permeation of a model b-blocker, propranolol by fatty acids: a melting point depression effect. *Int J Pharm* 219: 161–176.
- Sturm R.A., Teasdale R.D., Box N.F. (2001): Human pigmentation genes: identification, structure and consequences of polymorphic variation. *Gene* 277: 49–62.
- Suja K.P., Jayalekshmy A., Arumughan C. (2005): Antioxidant activity of sesame cake extract. *Food Chem* 91: 213–219.

Sung-Yum S., Vinay K.S., Niti S. (2003): Mushroom tyrosinase: Recent prospects. *J Agric Food Chem* 51: 2837–2853.

Sunil Kumar K.C., Müller K. (1998): Inhibition of leukotriene biosynthesis and lipid peroxidation in biological models by the extract of *Cassia fistula*. *Phytother Res* 12: 526–528.

Szente L., Magisztrak H., Szejtli J. (1990): Formulation of insect controlling agents with β -cyclodextrin. *Pesticide Sci* 28: 7–16.

Tabata K., Motani K., Takayanagi N., Nishimura R., Asami S., Kimura Y., Ukiya M., Hasegawa D., Akihisa T., Suzuki T. (2005): Xanthoangelol, a major chalcone constituent of *Angelica keiskei*, induces apoptosis in neuroblastoma and leukemia cells. *Biol Pharm Bull* 28: 1404–1407.

Tachibana Y., Kikuzaki H., HJ-Lajis N., Nakatani N. (2001): Antioxidant activity of carbazoles from *Murraya koenigii* leaves. *J Agric Food Chem* 49: 5589–5594.

Takema Y., Yorimoto Y., Kawai M., Imokawa G. (1994): Age related changes in the elastic properties and thickness of human facial skin. *Br J Dermatol* 131: 641–648.

Tao J., Morikawa T., Toguchida I., Ando S., Matsuda H., Yoshikawa M. (2002): Inhibitors of nitric oxide production from the bark of *Myrica rubra* structures of new biphenyl type diarylheptanoid glycosides and taraxerane type triterpene. *Bioorg Med Chem* 10: 4005–4012.

Tarayre J.P., Aliaga M., Villanova G., Cailol V., Lauressergues H. (1984): Pharmacological comparison of the immune and nonimmune inflammation induced by picryl chloride and oxazolone in mice. *Arch Int Pharmacodyn Ther* 269: 153–166.

The Pharmacopoeia Commission of PRC (1997): Pharmacopoeia of The People's Republic of China (I). Chemical Industry Press, Beijing, p. 61.

Tilak J.C., Adhikari S., Devasagayam T.P.A. (2004): Antioxidant properties of *Plumbago eylanica*, an Indian medicinal plant and its active ingredient, plumbagin. *Redox Report* 9: 219–227.

Touitou E., Godin B., Dayan N. (2001): Intracellular delivery mediated by an ethosomal carrier. *Biomaterials* 22: 3053–3059.

Touitou E., Dayan N., Bergelson L., Godin B., Eliaz M. (2000) Ethosomes-novel vesicular carriers: characterization and delivery properties. *J Control Release* 65: 403–418.

Trotta M., Peira E., Debernardi F., Gallarate M. (2002): Elastic liposomes for skin delivery of dipotassium glycyrrhizinate. *Int J Pharm* 241: 319–327.

Tsuji N., Moriwaki S., Suzuki Y., Takema Y., Imokawa G. (2001): The role of elastases secreted by fibroblasts in wrinkle formation: Implication through selective inhibition of elastase activity. *Photochem Photobiol* 74: 283–290.

Tsukahara K., Moriwaki S., Fujimura T., Takema Y. (2001): Inhibitory effect of an extract of *Sanguisorba officinalis* L. on ultraviolet-B-induced photodamage of rat skin. *Biol Pharm Bull* 24: 998–1003.

Twinkal G., Subheet J., Hardevinder O.S., Aevind S., Tiwary A.K. (2008): Elastic liposomal formulation for sustained delivery of antimigraine drug: *in vitro* characterization and biological evaluation. *Drug Dev Ind Pharm* 34: 1100–1110.

Uchegbu I.F., Florence A.T. (1995): Nonionic surfactant vesicles (niosomes)-physical and pharmaceutical chemistry. *Adv Colloid Interf Sci* 58: 1–55.

Uchegbu I.F., Vyas S.P. (1998): Non-ionic surfactant based vesicles (niosomes) in drug delivery. *Int J Pharm* 172: 33–70.

Vaibhav D., Dinesh M., Tathagata D., Manoj N., Saraf D.K., Jain N.K. (2007): Dermal and transdermal delivery of an anti-psoriatic agent via ethanolic liposomes. *J Control Release* 123: 148–154.

Valjakka-Koskela R., Kirjavainen M., Monkkonen J., Urtti A., Kiesvaara J. (1998): Enhancement of percutaneous absorption of naproxen by phospholipids. *Int J Pharm* 175: 225–230.

Van den Bergh B.A.I. (1999): Elastic liquid state vesicles as a tool for topical drug delivery, Thesis, Leiden University, The Netherlands, pp. 49–80.

VanMiddlesworth F., Cannell R.J.P. (1998): Dereplication and partial identification of natural products. In: Cannell RJP (Ed.), *Methods in Biotechnology: Natural Product Isolation*. Humana Press, New Jersey, p. 291.

Varani J., Dame M.K., Rittie L., Fligiel S.E., Kang S., Fisher G.J., Voorhees J.J. (2006): Decreased collagen production in chronologically aged skin: roles of agedependent alteration in fibroblast function and defective mechanical stimulation. *Am J Pathol* 168: 1861–1868.

Velluti A., Sanchis V., Ramos A.J., Marín S. (2003): Inhibitory effect of cinnamon, clove, lemongrass, oregano and palmarose essential oils on growth and fumonisin B₁ production by *Fusarium proliferatum* in maize grain. *Int J Food Microbiol* 89: 145–154.

Weber C., Podda M., Rallis M., Thiele J.J., Traber M.G., Packer L. (1997): Efficacy of topical applied tocopherols and tocotrienols in protection of murine skin from oxidative damage induced by UV irradiation. *Free Radic Biol Med* 22: 761–769.

- Wester R.C., Maibach H.I. (1995): In *Percutaneous Penetration Enhancers*, Smith EW; Maibach HI, Eds. CRC Press: Boca Raton, FL. pp. 21–28.
- Williams C.A., Grayer R.J. (2004): Anthocyanins and other flavonoids. *Nat Prod Rep* 21: 539–573.
- Wissing S.A., Muller R.H. (2001): A novel sunscreen system based on tocopherol acetate incorporated into solid lipid nanoparticles. *Int J Cosmet Sci* 23: 233–243.
- Yasui H., Sakurai H. (2003): Age-dependent generation of reactive oxygen species in the skin of live hairless rats exposed to UVA light. *Exp Dermatol* 12: 655–661.
- Yeh C.T., Yen G.C. (2005): Effect of vegetables on human phenolsulfotransferases in relation to their antioxidant activity and total phenolics. *Free Radical Res* 39: 893–904.
- Yeh S.L., Hu M.L. (2001): Induction of oxidative DNA damage in human foreskin fibroblast Hs68 cells by oxidized carotene and lycopene. *Free Rad Res* 35: 203–213.
- Yin L., Morita A., Tsuji T. (2000): Alterations of extracellular matrix induced by tobacco smoke extract. *Arch Dermatol Res* 292: 188–194.
- Ying L., Hofseth L.J. (2007): An emerging role for endothelial nitric oxide synthase in chronic inflammation and cancer. *Cancer Res* 67: 1407–1410.
- Yoshimura K., Harii K., Masuda Y., Takahashi M., Aoyama T., Iga T. (2001): Usefulness of a narrow-band reflectance spectrophotometer in evaluating effects of depigmenting treatment. *Aesthetic Plast Surg* 25: 129–133.
- Yoshimura S., Norita H., Hayashi K., Mitsuhashi H. (1983): Studies on the constituents of Asclepiadaceae Plants. LVI. Isolation of new antitumor active

glycosides from *Dregea volubilis* (L.) BENTH. *Chem Pharm Bull* 31: 3971–3983.

Young J.M., Spires D.A., Bedford C.J., Wagner B., Ballaron S.J., De Young L.H. (1984): The mouse ear inflammatory response to topical arachidonic acid. *J Invest Dermatol* 82: 367–371.

Yu W.H., Woessner J.F. (2001): Heparin-enhanced zymographic detection of matrilysin and collagenases. *Anal Biochem* 293: 38–42.

Zhu M., Luk H.H., Fung H.S., Luk C.T. (1997): Cytoprotective effects of *Cyperus rotundus* against ethanol induced gastric ulceration in rats. *Phytother Res* 11: 392–394.

Zhu P.Y. (1998): Chinese materia medica. Harwood Academic Publishers. Amsterdam, Netherlands, pp. 663–666.