

REFERENCES

- Abramowicz M. (1998). Propecia and rogaine extra strength for alopecia. *The Medical letter*, 40 : 25-27.
- Bruchovsky N.,and Wilson J.D. (1968). The conversion of testosterone to 5-alpha-androstan-17-beta-ol-3-one by rat prostate in vivo and in vitro. *Journal of Biochemistry*, 243 : 2012-2021.
- Datta K., Singh A.T., Mukherjee A., Bhat B., Ramesh B., and Burman A.C. (2009). *Eclipta alba* extract with potential for hair growth promoting activity. *Journal of Ethnopharmacology*, 124 : 450-456.
- Dawber R. (1996). Hair: Its Structure and Response to cosmetic preparations. *Clinics in Dermatology*, 14 : 105-112.
- Eicheler W., Happle R., and Hoffmann R. (1998). 5 α -reductase activity in the human hair follicle concentrates in the dermal papilla. *Archive of Dermatology research.*, 290 : 126-132.
- Fan L., Zhang H-Y., Xu M., Zhou L., Guo H., Han J., Wang B-R., and Guo D-A. (2009). Qualitative evaluation and quantitative determination of 10 major active components in *Carthamus tinctorius* L. by high-performance liquid chromatography coupled with diode array detector. *Journal of Chromatography A*, 1216 : 2063-2070.
- Fujita R., Liu J., Shimizu K., Konishi F., Noda K., Kumamoto S., et al. (2005). Anti-androgenic activities of *Ganoderma lucidum*. *Journal of Ethnopharmacology*, 102 : 107 -112.

- Gerber G.S. and Fitzpatrick J.M. (2004). The role of lipido-sterolic extract of *Serenoa repens* in the management of lower urinary tract symptoms associated with benign prostatic hyperplasia. *BJU International*, 94 : 338-344.
- Han F., Li S., Yin R., Liu H., and Xu L. (2008). Effects of surfactants on the formation and characterization of a new type of colloidal drug delivery system: Nanostructured lipid carriers. *Colloids and surfaces A*, 315 : 210-216.
- Hiipakka R.A., Zhang H-Z., Dai W., Dai Q., and Liao S. (2001). Structure-activity relationships for inhibition of human 5 α -reductase by polyphenols. *Biochemical pharmacology*, 63 : 1165-1176.
- Hirata N., Tokunaga M., Naruto S., Iinuma M., and Matsuda H. (2007). Testosterone 5 α -reductase inhibitory active constituents of *Piper nigrum* leaf. *Biological and Pharmaceutical bulletin*, 30(12) : 2402 – 2405.
- Horwitz W., Kamps L.R., and Boyer K.W. (1980). Quality assurance in the analysis of foods and trace constituents. *Journal of the Association of Official Analytical Chemists*, 63 : 1344-1354.
- Hu F-Q., Jiang S-P., Du Y-Z., Yuan H., Ye Y-Q., and Zeng S. (2006). Preparation and characteristics of monostearin nanostructured lipid carriers. *International Journal of Pharmaceutics*, 314 : 83-89.
- ICH (1995a). Text on validation of analytical procedures (ICH-Q2A), ICH Harmonised Tripartite Guideline.
- ICH (1995b). Validation of analytical methods definition and terminology: comments for its application, ICH Harmonised Tripartite Guideline.
- ICH (1995c). Validation of analytical procedures methodology: comments for its application, ICH Harmonised Tripartite Guideline.

ICH (1996). Validation of analytical procedures: methodology, ICH Harmonised Tripartite Guideline.

Iehl  C., Radvanyi F., Medina SGD., Ouafik LH., Chopin D., Raynuad J-P., *et al.* (1999). Differences in steroid 5 α -reductase iso-enzymes expression between normal and pathological human prostate tissue. *Journal of Steroid Biochemistry and Molecular Biology*, 68 : 189-195.

Jin Y., Xiao Y-S., Zhang F-F., Xue X-Y., Xu Q., and Liang X-M. (2008). Systematic screening and characterization of flavonoid glycosides in *Carthamus tinctorius* L. by liquid chromatography/UV diode-array detection/electrospray ionization tandem mass spectrometry *Journal of Pharmaceutical and Biomedical analysis*, 46 : 418-430.

Jores K., Haberland A., Wartewig S., M der K. and Mehnert W. (2005). Solid lipid nanoparticle (SLN) and oil-loaded SLN studied by spectrofluorometry and raman spectroscopy. *Pharmaceutical Research*, 22(11) : 1887-1897.

Kim Y-U., Son H.K., Son H.K., Ahn M-J., Lee S.S. and Lee S.K. (2003). Inhibition of 5alpha-reductase activity by diarylheptanoids from *Alpinia officinarum*. [Online]. Available <http://www.ncbi.nlm.nih.gov/pubmed/12567285> [2010, June 6].

Kumar T., Chaiyasut C., Rungseevijitprapa W., and Suttajit M. (2011a). Screening of steroid 5 α -reductase inhibitory activity and total phenolic content of Thai plants. *Journal of Medicinal Plants Research*, 5(7) : 1265-1271.

- Kumar, N., Tharatha, S., Chaiyasut, C. (2011b). Development and validation of simple isocratic high performance liquid chromatography-ultraviolet (HPLC-UV) method for determination of safflower yellow in *Carthamus tinctorius* L.-loaded nanostructured lipid carriers (NLC). *African Journal of Pharmacy and Pharmacology*, 5(20) : 2335-2341.
- Kumar, N., Rungseevijitprapa, W., Narkkhong, N-A., Suttajit, M. Chaiyasut, C. (2012). 5 α -reductase inhibition and hair growth promotion of some Thai plants traditionally used for hair treatment. *Journal of Ethnopharmacology*, 139 : 765-771.
- Kwon O.S., Han J.H., Yoo H.J., Chung K.H., Cho K.H., Eun H.C., et al. (2007). Human hair growth enhancement in vitro by green tea epigallocatechin-3-gallate. *Phytomedicine*, 14 : 551-555.
- Lacy C.F., Armstrong L.L., Goldman M.P., and Lance L.L. (2008). Drug Information Handbook with international trade names index. 17th ed. (pp.652-653), United States : LexiComp Inc.
- Li Y-H., Yang Y-F., Li K., Jin L-L., Yang N-Y., and Kong D-Y. (2009). 5 Alpha-reductase and aromatase inhibitory constituents from *Brassica rapa* L. pollen. *Chemical and Pharmaceutical Bulletin*, 57(4) : 401-404.
- Liang T., and Liao S. (1992). Inhibition of steroid 5-alpha-reductase by specific aliphatic unsaturated fatty acids. *Biochemical Journal*, 285 : 557-562.
- Lin X., Li X., Zheng L., Yu L., Zhang Q., and Liu W. (2007). Preparation and characterization of monocarprate nanostructured lipid carriers. *Colloids and Surface A*, 311 : 106-111.

- Liu J., Kurashiki K., Shimizu K., and Kondo R. (2006). Structure-activity relationship for inhibition of 5 α -reductase by triterpenoids isolated from *Ganoderma lucidum*. *Bioorganic Medicinal chemistry*, 14 : 8654-8660.
- Liu S. and Yamauchi H. (2008). Different patterns of 5 α -reductase expression, cellular distribution, and testosterone metabolism in human follicular dermal papilla cells. *Biochemistry and Biophysics Research Communication*, 368 : 858-864.
- Liu J., Ando R., Shimizu K., Hashida K., Makino R., Ohara S., et al. (2008) Steroid 5 α -reductase inhibitory activity of condensed tannins from woody plants. *Journal of Wood Science*, 54 : 68-75.
- Lowe C.L., and Fagelman E. (1999). Phytotherapy in the treatment of benign prostatic hyperplasia: an update. *Urology*, 53 : 671-678.
- Lowry O.H., Rosbrough N.J., Farr A.L., and Randall R.J. (1951). Protein measurement with the Folin Phenol reagent. *Journal of Biological Chemistry*, 193 : 265-275.
- Lucks J.S., and Müller R.H. (1996). Medication vehicles made of solid lipid particle (solid lipid nanospheres – SLN), European Patent EP0000605497.
- Matsuda H., Yamazaki M., Matsuo K., Asanuma Y., and Kubo M. (2001). Anti-androgenic activity of Myricae cortex- isolation of active constituents from bark of *Myrica rubra*. *Biological and Pharmaceutical bulletin*, 24(3) : 259-263.

- Matsuda H., Yamazaki M., Naruto S., Asanuma Y., and Kubo M. (2002). Anti-androgenic and hair growth promoting activities of Lygodii spora (spore of *Lygodium japonicum*) I. Active constituents inhibiting testosterone 5 α -reductase. *Biological and Pharmaceutical bulletin*, 25(5) : 622 - 626.
- McElwee K.J., Sinclair R. (2008). Hair physiology and its disorder. *Drug discovery today: DiseaseMechanism*. 5(2) : e163-e171.
- McGuire J.S., Hollis V.W., and Tomkin G.M. (1960). Some characteristics of the microsomal steroid reductases of a rat liver. *Journal of Biochemistry*, 235 : 112-117.
- Mehnert W. and Mäder K. (2001). Solid lipid nanoparticles: production, characterization and applications. *Advance Drug Delivery Review*, 47 : 165-196.
- Mithri K., Shegokar R., Gohla S., Anselmi C. and Müller R.H. (2011). Lipid nanoparticle for dermal delivery of lutein: Preparation, characterization, stability and performance. *International Journal of Pharmaceutics*, 414 : 267-275.
- Müller R.H., Radtke M., and Wissing S.A. (2002). Solid lipid nanoparticles (SLN) and nanostructured lipid carriers (NLC) in cosmetic and dermatological preparations. *Advance Drug Delivery Reviews*, 54(Suppl. 1) : 131-155.
- Neste Van D. and Shaker G. (2001). Interactions with Hair and Scalp. in Paye M., Barel A.O., Maibach H.I. (Eds.), *Handbook of Cosmetic Science and Technology* (pp.575-580), New York : Taylor & Francis Group.

- Niederprüm H.J., Schweikert H.U., and Zâンker K.S. (1994). Testosterone 5-reductase inhibition by free fatty acids from *Sabal serrulata* fruits. *Phytomedicine*, 1 : 127-133 .
- Park W-S., Lee C-H., Lee B-G., and Chang I-S. (2003). The extract of *Thujae occidentalis* semen inhibited 5-reductase and adrochronogenetic alopecia of B6CBAF1/j hybrid mouse. *Journal of Dermatological Science*, 31 : 91-98.
- Patzelt A., Knorr F., Blume-Peytavi U., Sterry W. and Lademann J. (2008). Hair follicles, their disorders and their opportunities. *Drug discovery today: Disease Mechanism*. 5(2) : e173-e181.
- Pradeike J., Hommoss A., and Müller R.H. (2009). Lipid nanoparticles (SLN,NLC) in cosmetic and pharmaceutical dermal products. *International Journal of Pharmaceutics*, 366 : 170-184.
- Raynuad J-P., Cousse H., and Martin P-M. (2002). Inhibition of type 1 and type 2 5 α -reductase by free fatty acids, active ingredients of Permixon®. *Journal of Steroid Biochemistry & Molecular Biology*, 82 : 233 -239.
- Robinson A.J., DeLuca I., Drummond S., and Boswell G.A. (2003). Steroidal nitrone inhibitor of 5 α -reductase. *Tetrahedron Letter*, 44 : 4801-4804.
- Roh S-S., Kim C.D., Lee M-H., Hwang S-L., Rang M-J., and Yoon Y-K. (2002). The hair growth promoting effect of *Sophora flavescens* extract and its molecular regulation. *Journal of Dermatological Science*, 30 : 43-49.
- Sawaya M.E. (1998). Novel agents for the treatment of alopecia. *Seminars in cutaneous medicine and surgery*, 17(4) : 276-283.
- Sawaya M.E. and Shapiro J. (2000). Alopecia: Unapproved treatments or indications. *Clinics in Dermatology*, 18 : 177-186.

- Schaefer H. and Lademann J. (2001). The role of follicular penetration. A differential view. *Skin Pharmacology and applied Skin Physiology*, 14(Suppl. 1) : 23-27.
- Shimizu K., Kondo R., Sakai K., Shoyama Y., Sato H., and Ueno T. (2000a). Steroid 5 α -reductase inhibitory activity and hair regrowth effects of an extract from *Boehmeria nipononivea*. *Bioscience, Biotechnology, and Biochemistry*, 64(4) : 875-877.
- Shimizu K., Kondo R., Sakai K., Baubarn S., and Dilokkunanunt U. (2000b). A gernylated chalcone with 5 α -reductase inhibitory properties from *Atrocarpus incisus*. *Phytochemistry*, 54 : 737-739.
- Sinclair R.D. (2004). Male androgenetic alopecia. *Journal of Men's Health and Gender*, 1(4) : 319-327.
- Slominski A., Paus R., Plonka P., Chakraborty A., Maurer M., Pruski D., Lukiewicz S. (1994). Melanogenesis during the anagen-catagen-telogen transformation of the murine hair cycle. *The journal of investigative dermatology*, 102 : 862-869.
- Teeranachaideekul V., Souto E.B., Junyaprasert V.B., and Müller R.H. (2007). Cetyl palmitate-based NLC for topical delivery of Coenzyme Q₁₀ – Development, physicochemical characterization and *in vitro* release studies. *European Journal of Pharmaceutics and Biopharmaceutics*, 67 : 141-148.
- Teeranachaideekul V., Boonme P., Souto E.B., Müller R.H. and Junyaprasert V.B. (2008). Influence of oil content on physicochemical properties and skin distribution of Nile red-loaded NLC. *Journal of Control release*, 128 : 134-141.

Trüeb R.M. (2002). Molecular mechanisms of androgenetic alopecia. *Experimental Gerontology*, 37 : 981-990.

Wen A., Yang J., Jia Y., Yang Z., Tian Y., Wu Y., Wang Z., and He Z. (2008). A rapid and sensitive liquid chromatography–tandem mass spectrometry (LC–MS/MS) method for the determination of hydroxysafflor yellow A in human plasma: Application to a pharmacokinetic study. *Journal of Chromatography B*, 876 : 41-46.

Wissing S.A., and Müller R.H. (2003). Cosmetic applications for solid lipid nanoparticles (SLN). *International Journal of Pharmaceutics*, 254 : 65-68.

Yoon J.I., Al-Reza S.M., and Kang S.C. (2010). Hair growth promoting effect of *Zizyphus jujuba* essential oil. *Food and Chemical Toxicology*, 48 : 1350-1354.