

REFERENCES

REFERENCES

- Fatah AM, Matsumoto K, Watanabe H. Antinociceptive effects of *Nigella Sativa* oil and its major component. *Eur J Pharmacol* 2000; 400(1): 89-97.
- Agarwal R, Kharya MD, Shrivastava R. Antimicrobial and anthelmintic activities of the essential oil of *Nigella Sativa* Linn. *Indian J Exp Biol* 1979; 17(11): 1264-65.
- Akhtar MS, Riffat S. Field trial of *Saussurea lappa* roots against nematodes and *Nigella Sativa* seeds against cestodes in children. *JPMA* 1991; 41: 185-87.
- Al-Awadi F, Fantania H, Shamte U. The effect of a plant mixture extract on liver gluconeogenesis in streptozotocin induced diabetic rats. *Diabetes Res* 1991; 18(4): 163-8.
- Ansari MA. To compare the role of calcium channel blocker with approved drugs used in opioid abstinence syndrome. Thesis, Department of Pharmacology, BMSI, JPMC, Karachi, 1999.
- Anthony JC and Helzer JE. Epidemiology of drug independence. In: Tsuang MT, Tohen M, Zahner GE (eds). *Text book in psychiatric epidemiology*. New York: Willy-Liss, 1995: 361-406.
- Aqel M, Shaheen R. Effects of the volatile oil of *Nigella Sativa* seeds on the uterine smooth muscle of rat and guinea pig ileum. *J Ethnopharmacol* 1996; 52(1): 23-26.

- Baeyens JM, Esposito E, Ossowska G. and Samanin R. Effects of peripheral and central administration of Ca⁺⁺ channel blockers in the naloxone-precipitated abstinence syndrome in morphine-dependent rats. *Eur J Pharmacol* 1987; 137: 9-13.
- Baloch H. Role of verapamil in opioid dependence. Thesis, Department of Pharmacology, BMSI, JPMC, Karachi, 1991.
- Bolger GT, Gengo PT, Lucknowski EM, Siegel H, Triggle DJ and Janis RA. High affinity binding of Ca⁺⁺ channel antagonist to smooth and cardiac muscles. *Biochem Biophys Res Commun* 1982; 104: 1604-1609.
- Bolton TB. *Physiological reviews*. Vol. 59, No. 3, July 1979.
- Bongiani F, Carla V, Moroni F, Pellegrini-Giampetro DE. Calcium channel inhibitors suppress the morphine-withdrawal syndrome in rats. *Br J Pharmacol* 1986 Jul; 88(3): 561-7.
- Bozarth MA and Wise RA. Anatomically distinct opiate receptor fields mediate reward and physical dependence. *Science* 1984; 224: 516-17.
- Braunwald E. Mechanism of action of calcium channel blocking agents. *N Engl J Med* 1982; 307: 1618-27.
- Brown TT. *Enigma of drug addiction*. Springfield, Ill, Thomas, 1961.
- Chakaravarty N. Inhibition of histamine release from mast cells by nigellone. *Ann Allergy* 1993; 70: 237-42.

- Charney SD, Redmond E Jr, Galloway MP, Kleber HD, Heninger GR, Murberg M, Roth RH. Naltrexone precipitated opiate withdrawal in methadone addicted human subjects: Evidence for noradrenergic hyperactivity. *Life Sci* 1984; 35: 1263-72.
- Childers SR. Mini-review. Opioid receptor coupled second messenger systems. *Life Sci* 1991; 48: 1991-03.
- Chow EPY. Traditional Chinese medicine: a holistic system. In: *Alternative medicines. Popular and perspectives.* JW Salmon (ed). London: Tavistock, 1984: pp 114-137.
- Comb M, Seeburg PH, Adelman J, Eiden L and Herbert E. Primary structure of the human met and leu enkephalin precursor and its mRNA. *Nature* 1982; 295: 663.
- Crawley JN, Lavery R, Roth RH. Clonidine reversal of increased norepinephrine metabolite levels during morphine withdrawal. *Eur J Pharmacol* 1979; 57: 247-50.
- Daba MH, Abdel-Rahman MS. Hepato-protective activity of thymoquinone in isolated rat hepatocytes. *Toxicol Lett* 1998; 95(1): 23-9.
- Dhawan BN, Cesselin F, Raghbir R, Reisine T, Bradley PB, Portoghese PS, Hamon M. International union of pharmacology. XII classifications of opioid receptors. *Pharmacol Rev* 1996; 48: 567-92.

- Dingledine R and Goldstein A. Effect of synaptic transmission blockade on morphine action in the guinea-pig myenteric plexus. *J Pharmacol Exp Ther* 1976; 196: 97-106.
- Donnerer J, Candinala G, Cojje J, Lisek CA, Jardine I, Specter S. Chemical characterization and regulation of morphine and codeine in the rat. *J Pharmacol Exper Ther* 1987; 242: 583-87.
- Duke JA. Handbook of phytochemical constituents of GRAS herbs and other economical plants. London: CRC Press, 1992: pp 407-08.
- Eddy NB, Halbach H, Isbell H and Seevers MH. Drug dependence: Its significance and characteristics. *Bull World Health Organ* 1965; 32: 721-33.
- Edwards G, Arif A and Hodgson R. Nomenclature and classification of drug and alcohol related problems: A WHO memorandum. *Bull. World Health Organ* 1981; 59: 225-42.
- El-Fattary HM. Isolation and structure assignment of an antimicrobial principle from the volatile *Nigella Sativa* Linn seeds. *Pharmazie* 1975; 30(2): 109-11.
- El-Tahir KE, Ashour MM, Al-Harbi MM. The cardiovascular actions of the volatile oil of the black seed (*Nigella Sativa*) in rats: Elucidation of the mechanism of action. *Gen Pharmacol* 1993; 24: 1123-31.
- Evans WC. Pharmacognosy. 14th ed. London: W.B. Saunders Co. Ltd., 1996: pp 185, 262, 501.

- Fields A and Sarne Y. The stimulatory effect of opioids in cyclic AMP production in SK-N-SH cells is mediated by calcium ions. *Life Sci* 1997; 61(6): 595-602.
- Fleckenstein A. History of Ca⁺⁺ antagonists. *Circ Res* 1983; 52 (Suppl.-1): 3-16.
- Fleckenstein A. Specific pharmacology of Ca⁺⁺ in myocardium, cardiac pacemakers and vascular smooth muscle. *Ann Rev Pharmacol Toxicol* 1977; 17: 149-166.
- Garaulet JV, Laorden ML and Milanés MV. Effect of chronic administration of dihydropyridine Ca⁺⁺ channel ligands on sufentanil-induced tolerance to mu- and kappa- opioid agonists in the guinea-pig ileum myenteric plexus. *Regul Papt* 1996; 63(1): 1-8.
- Ghosheh OA, Houdi AA and Crooks PA. High performance liquid chromatography analysis of the pharmacologically active quinones and related compounds in the oil of the black seed (*Nigella Sativa*). *J Pharma Biomed Anal* 1999; 19(5): 757-62.
- Gilani AH, Aziz N, Khurram IM, Chaudhary KS, Iqbal A. Bronchodilator, spasmolytic and calcium antagonist activities of *Nigella Sativa* seeds (Kalongi): A traditional herbal product with multiple medicinal uses. *JPMA* Vol. 51, No. 3, March 2001; 115-119.

- Gilbert PE and Martin WR. The effects of morphine and morphine-like drugs in the non-dependent, morphine-dependent and cyclazocine-dependent chronic spinal dog. *J Pharmacol Exp Ther* 1976; 198: 66-82.
- Gould RJ, Murphy KMM and Synder SH. [H^3] Nitrendipine-labelled Ca^{++} channels discriminate inorganic Ca^{++} agonists and antagonists. *Proc Natl Acad Sci* 1982; 79: 3656-60.
- Greenstein RA, Fudala PJ and O'Brien CP. Alternative pharmacotherapies for opiate addiction. In: *Substance abuse: A comprehensive text book*. Chapter 42. Lowinson JH, Ruiz P, Millman RB, Langrod JG (eds). USA: William and Wilkins, 1997: 42: 415-25.
- Gross RA and Macdonald RL. Dynorphin a selectively reduces a large transient (N-type) calcium current of mouse dorsal root ganglion neurons in cell culture. *Proc Natl Acad Sci* 1987; 84: 5469-73.
- Hall W, Ward J and Mattick RP. The effectiveness of methadone maintenance treatment, heroin use another crime. In: Ward J, Mattick RP and Hall W (eds). *Methadone maintenance treatment and other opioid replacement therapies*. Amsterdam: Harwood Academic, 1998: pp 17-58.
- Hanafy MS, Hatem ME. Studies on the anti-microbial activity of *Nigella Sativa* seeds (black cummin). *J Ethnopharmacol* 1991; 34: 275-78.

- Harris RA, Loh HH and Way EL. Effects of divalent cations, cation chelators and an ionophore on morphine analgesia and tolerance. *J. Pharmacol Exp Ther* 1975; 195: 488-98.
- Harris RA, Yamamoto H, Loh HH and Way EL. Discrete changes in brain Ca^{++} with morphine analgesia, tolerance-dependence, and abstinence. *Life Sci* 1977; 20: 501-506.
- Henderson G, Hughes J and Kosterlitz HW. The effects of morphine on the release of nor-adrenaline from the cat isolated nictitating membrane and the guinea-pig ileum myenteric plexus-longitudinal muscle preparation. *Br J Pharmacol* 1975; 53: 505-512.
- Hernandez A, Contres E, Paeile C, Perez H, Pelissier T, Quijada L, Soto-Moyano R. Calcium channel modulators modify K-opioid-induced inhibition of c-fiber-evoked spinal reflexes in rat. *Int J Neurosci* 1993 Oct; 72(3-4): 167-74.
- Hiltunen AJ, Lafolie P, Martel J, Ottoson EC, Boreus LO, Beck O, Borg S and Hjemdahl P. Subjective and objective symptoms in relation to plasma methadone concentrations in methadone patients. *Psychopharmacol* 1995; 118: 122-26.
- Himmelsbach CK. Clinical studies of drug addiction: Physical dependence, withdrawal and recovery. *Arch Intern Med* 1942; 69: 766-72.

- Houghton PJ, Zarka R, Heras B et al. Fixed oil of *Nigella Sativa* and derived thymoquinone inhibit eicosanoid generation in leukocytes and membrane lipid peroxidation. *Planta Medica* 1995; 61: 33-36.
- Jaffe JH and Jaffe FK. Historical perspectives on the use of subjective effects measures in assessing the abuse potential of drugs. *NIDA Monogr Res Scr* 1989; 92: 43-72.
- Jaffe JH. Drug addiction and drug abuse, in the pharmacological basis of therapeutics. Goodman A, Rall TW, Nies AJ and Taylor P (eds). New York: Pergamon Press, 1990: pp 522-73.
- Jaffe JH. Drug addiction and drug abuse. In: The pharmacological basis of therapeutics. Goodman LS and Gilman A (eds). 5th Ed. New York: MacMillan, 1975: 284-324.
- Kakidani H, Furutani Y and Takahashi H. Cloning and sequence analysis of cDNA for porcine β -neoendorphin/dynorphin precursor. *Nature* 1982; 298: 245-48.
- Kapoor LD. Handbook of Ayurvedic medicinal plants. Florida: CRC Press Inc., 1990: pp 87-88, 102, 114-15, 245, 292, 302.
- Keshri G, Singh MM, Lakshami V, Kamtoj VP. Post-coital contraceptive efficacy of the seeds of *Nigella Sativa* in rats. *Indian J Physiol Pharmacol* 1995; 39(1): 59-62.

- Lord JAH, Waterfield AA, Hughes J, Kosterlitz HW. Endogenous opioid peptides: Multiple agonists and receptors. *Nature* 1977; 267: 495-99.
- Macht D. The history of opium and some of its preparations and alkaloids. *JAMA* 1915; 64: 477-81.
- Mahesar Z. Evaluation of the detoxifying role of felodipine in opioid dependence. Thesis, Department of Pharmacology, BMSI, JPMC, Karachi, 1994.
- Maldonado R. Participation of noradrenergic pathways in the expression of opiate withdrawal: Biochemical and pharmacological evidence. *Neurosci Biobehav Rev* 1997; 21(1): 91-104.
- Mansour A, Khachaturian H, Lewis ME, Akil H and Warson SJ. Anatomy of CNS opioid receptors. *Trends Neurosci* 1988; 11: 308-14.
- Martin WR and Jasinski DR. Physiological parameters of morphine in man-tolerance, early abstinence and protracted abstinence. *J Psychiatr Res* 1969; 7: 9-17.
- Martin WR, Eades CG, Thompson JA, Huppler RE and Gilbert PE. The effects of morphine and nalorphine like drugs in the non-dependent and morphine-dependent chronic spinal dog. *J Pharmacol Exp Ther* 1976; 197: 517-32.

- Martinez-Pinero MG, Vargas ML, Milanés MV. L-type Ca^{++} channel ligands modulate morphine effects on the hypothalamus-pituitary-adrenocortical axis in rats. *Eur J Pharmacol* 1993 Mar 2; 232(2-3): 191-98.
- Medenica R, Janssens J, Tarasenko A, Lazovic G, Corbitt W, Powell D, Jovic D, Mujovic V. Anti-angiogenic activity of *Nigella Sativa* plant extract in cancer therapy. *Proc Ann Meet Am Assoc Cancer Res* 1997; 38: A1377.
- Mendelson J, Jones RT, Fernandez I, Welm S, Melby AK and Baggott MJ. Buprenorphine and naloxone interaction in opioid dependent volunteers. *Clin Pharmacol Ther* 1996; 60: 105-14.
- Menounos P, Staphylakis K and Gegiou D. The sterols of *Nigella Sativa* seed oil. *Phytochem* 25(3): 761-63.
- Miller RJ and Freedman SB. Are dihydropyridine binding sites voltage sensitive Ca^{++} channels? *Life Sci* 1984; 34: 1205-21.
- Murphy KMM and Synder SH. Ca^{++} antagonist receptor binding sites labelled with [H^3] nitrendipine. *Eur J Pharmacol* 1982; 77: 201-202.
- Nandakarni AK. *Indian materia medica popular*. Bombay: Prakshan, 1976: pp 226-29, 280, 313-34, 730, 854-57, 1075-77, 1126-29.
- Narita M and Tseng LF. Evidence for the existence of the beta endorphin sensitive "epsilon opioid receptor" in the brain: The mechanism of epsilon mediated antinociception. *Jpn J Pharmacol* 1998; 76: 233-53.

- North RA, Williams JT, Surprenant A, Christi MJ. μ and δ -receptors belong to a family of receptors that are coupled to potassium channels. *Proc Natl Acad Sci* 1987; 84: 5487-91.
- Nutt DJ. Addiction: Brain mechanisms and their treatment implications. *Lancet* 1996; 347: 31-36.
- O'Brien CP. Drug addiction and drug abuse. In: The pharmacological basis of therapeutics. Gilman AG, Molintoff PB and Ruddon RW (eds). 9th Ed. USA: McGraw Hill, 1996: pp 557-77.
- O'Brien CP and McLellan AT. Myths about treatment of addiction. *Lancet* 1996; 347: 237-40.
- Oka T. Enkephalin receptor in the rat ileum. *Br J Pharmacol* 1980; 68: 193-95.
- Okpako DT. Principles of pharmacology. A tropical approach. Cambridge: Cambridge University Press, 1991: pp 63-81.
- Opmeer FA and Van Ree JM. Differential involvement of calcium in acute and chronic opioid action in the guinea-pig ileum in vitro. *J Pharmacol Exp Ther* 1980; 213: 188-95.
- Rehman A and Malik S. Isolation and structure determination of Nigellicine, a novel alkaloid from the seeds of *Nigella Sativa*. *Tetrahedron Lett* 1985; 26: 2759-62.

- Rehman A, Malik S and Zaman K. Nigellimine: A new isoquinoline alkaloid from the seeds of *Nigella Sativa*. *J Natur Prod* 1992; 55: 676-78.
- Rehman A, Malik S, Hasan S, Chaudhary I, Ni C-Z and Clardy J. Nigellidine: A new indazole alkaloid from the seeds of *Nigella Sativa*. *Tetrahedron Lett* 1995; 36: 1993-96.
- Robert JL and Herbert E. Characterization of a common precursor to corticotrophin and β -lipotropin: Cell free synthesis of the precursor and identification of corticotrophin peptides in the molecule. *Proc Natl Acad Sci* 1977; 74: 4826-30.
- Rothman RB, Holaday JW and Porreca F. Allosteric coupling among opioid receptors: Evidence for an opioid receptor complex. In: *Opioids I, handbook of experimental pharmacology*. Herz A, Akil H and Simon EJ (eds). Berlin: Springer-Verlag, 1993: pp 217-37.
- Salama RB. Sterols in the seed oil of *Nigella Sativa*. *Planta Med* 1973; 24(4): 375-77.
- Salat Y. Role of calcium channel blocker (verapamil) in acute opioid abstinence syndrome. Thesis. Department of Pharmacology, BMSI, JPMC, Karachi, 1998.
- Salomi NJ, Nair SC, Jayawardhanan KK, Varghese CD, Panikkar KR. Anti-tumour principles from *Nigella Sativa* seeds. *Cancer Lett* 1992; 63: 41-46.

- Schoffelmear ANM, De Vries TJ, Hogenboom F, Hruby VJ, Portoghese PS and Mulder AH. Opioid receptor antagonists discriminate between presynaptic μ and δ -receptors and the adenylate-cyclase-coupled opioid receptor complex in the brain. *J Pharmacol Exp Thera* 1992; 263: 20-24.
- Schoffelmeer ANM, De Vries TJ, Hogenboom F and Mulder AH. "mu"- "delta"- opioid receptors inhibitorily linked to dopamine sensitive adenylate cyclase in rat striatum display a selective profile toward endogenous opioid peptides different from that of pre-synaptic μ -, δ and κ - receptors. *J Pharmacol Exp Ther* 1993; 267: 205-10.
- Schuckit MA. Anxiety disorders and substance abuse. In: American psychiatric press review of psychiatry. Vol. II. Tasman A and Riba MB (eds). Washington DC: American Psychiatric Press, 1992: pp 49-63.
- Schuckit MA. Drug and alcohol abuse. A clinical guide to diagnosis and treatment. 3rd Ed. New York: Plenum Medical, 1989: 16.
- Schulz R, Faase E, Wuster M and Herz A. Selective receptors for β -endorphin on the rat vas deferens. *Life Sci* 1979; 24: 843-50.
- Schwartz S and Katki AG. Effects of calcium channel blockers (CCB) on 'mu' and 'delta' opioid receptors in rat brain membranes. *Prog Clin Biolog Res* 1990; 328: 109-12.

- Sher E, Cesare P, Codignola A, Clementi F, Tarroni P, Pollo A, Magnelli V, Carbone E. Activation of delta-opioid receptors inhibit neuronal-like calcium channels and distal steps of Ca^{++} dependent secretion in human small-cell lung carcinoma cells. *J Neurosci* 1996; Jun 1; 16(11): 3672-84.
- Shulman A, Tagoda J, Laycock G and Kelly H (1998) Calcium channel blocking drugs in the management of drug dependence, withdrawal and craving. *Aust Fam Physician* 1998; 27(Suppl): S19-24.
- Shulman A, Tagoda J, Laycock G and Kelly H. Calcium channel blocker drugs in the management of drug dependence, withdrawal and craving. *Aust Fam Physic* 1998; 27(suppl.1): S19-S24.
- Simmons ML, Terman GW, Gibbs SM, Charkin C. L-type calcium channels mediate dynorphin neuropeptide release from dendrites but not axons of hippocampal granule cells. *Neuron* 1995 Jun; 14(6): 1265-72.
- Simon EJ. Opiates: Neurobiology. In: Substance abuse. Lowinson JH (ed). 3rd Ed. New York: Williams and Wilkins, 1997: pp 148-58.
- Smart D and Lambert DG. δ -opioids stimulate inositol 1,4,5-triphosphate formation, and so mobilize Ca^{++} from intracellular stores in undifferentiated NG108-15 cells. *J Neurochem* 1996 Apr; 66(4): 1462-67.
- Smith AP, Lee NM and Loh HH. Opioid analgesics and antagonists. In: Principles of pharmacology. Chapter 20. Muson PL (ed). USA: Champman and Hall, 1996: pp 399-416.

- Smith AP, Lee NM and Loh HH. Opioid analgesics and antagonists. In: Principles of pharmacology. Chapter 20. Munson PL (ed). USA: Chapman and Hall, 1996: pp 399-416.
- Spampinato S, Speroni E, Govoni P, Pistacchio E, Romagnoli C, Murari G, Ferri S. Effect of omega-conotoxin and verapamil on antinociceptive, behavioural and thermo-regulatory responses to opioids in the rat. *Eur J Pharmacol* 1994 Mar 12; 254(3): 229-38.
- Spector S, Kantrowitz JD and Oka K. Presence of endogenous morphine in toad skin. *Prog Clin Biol Res* 1985; 192: 329-32.
- Swann A, Elsworth JD, Charney DS, Jablons DM, Roth RH, Redmod DE Jr. Brain catecholamine metabolites and behaviour in morphine withdrawal. *Eur J Pharmac* 1983; 86: 167-75.
- Takruri HRH and Dameh MAF. Study of the nutritional value of black cumin seeds. *J Sci Food Agricul* 1998; 76(3): 404-10.
- Triggle DJ and Swamy VC. Ca^{++} antagonists, some chemical-pharmacologic aspects. *Circ Res* 1983; 52 (Suppl. I): 17-28.
- Udenfriend S and Kilpatrick DL. Proenkephalin and the products of its processing: Chemistry and biology. In: The peptides. Udenfriend S and Meienhofer J (eds). New York: Academic Press, 1984: pp 25-68.
- Usmanghani K, Saeed A and Alam MT. Indus yunic medicine: Traditional medicine of herbal, animal and mineral origin in Pakistan. Karachi: BCC and T Press, University of Karachi, 1997: pp 129-30, 156-58, 273-74, 310-11, 383-84, 397-98.

- van Ree JM, Gerrits MAFM and Vanderscharen LJMJ. Opioids, reward and addiction: An encounter of biology, psychology, and medicine. *Pharmacol Rev* 1999; 51(2): 341-96.
- Von Voigtlander PF, Ochoa MC, Lewis RA. Biochemical and functional interactions of a selective kappa opioid agonist with calcium. *Adv Exp Med Biol* 1987; 221: 345-55.
- Weitz CJ, Faull KF and Goldstein A (1987) Synthesis of skeleton of morphine molecule by mammalian liver. *Nature* 1987; 330: 674-77.
- Williamson EM, Okpako DT and Evans FJ. In pharmacological methods in phyto-therapy research. Vol. I. John Wiley & Sons, 1998: pp 1-8.
- Wise RA. The neurobiology of craving: Implication for understanding and treatment of addiction. *J Abnorm Psychol* 1988; 97: 118-132.
- Yamamoto H, Harris RA, Loh HH and Way EL. Effects of acute and chronic morphine treatments on Ca^{++} localization and binding in brain. *J Pharmacol Exp Ther* 1978; 205: 255-64.
- Zaui A, Cherrah Y, Lacaille-Dubois MA, Settaf A, Amarouch H, Hassar M. Diuretic and hypotensive effects of *Nigella Sativa* in the spontaneously hypertensive rat. *Therapie* 2000; 55(3): 379-82.
- Zukin SR and Zukin RS. Specific H^3 phencyclidine binding in rat central nervous system. *Proc Natl Acad Sci* 1979; 76: 5372-76.