

REFERENCES

- Aadil, K.R., Barapatre, A., Rathore, N., Pottam, S., Jha, H., 2012. Comparative study of in-vitro antioxidant and antidiabetic activity of plant extracts of *Acacia arabica*, *Murraya koeingii*, *Catharanthus roseus* and *Rouwolfia serpentine*. *International Journal of Phytomedicine* 4, 543-551.
- Abidemi, T.A., Adebayo, O.J., Oduwa, O., Agbotoba, M.O., 2009. Nutrient content and antinutritional factor in Shea butter (*Butryospermum parkii*) leaves. *African Journal of Biotechnology* 8(21), 5888-5890.
- Acharya, L., Mukherjee, A.K., Panda, P.C., 2011. Separation of the genera in the subtribe Cassiinae (Leguminosae: Caesalpinioideae) using molecular markers. *Acta Botanica Brasilica* 25(1), 223-233.
- Aderogba, M.A., Ogundaini, A.O., Eloff, J.N., 2006. Isolation of two flavonoids from *Bauhinia monandra* (kurz) leaves and their antioxidative effects. *African Journal of Traditional, Complimentary and Alternatice* 3(4), 59 – 65.
- Afifi, A.F., Kamel, E.M., Khalil, A.A., Foad, M.A., Fawzi, Houseny, M.m., 2008. Purification and characterization of α -amylase from *Penicillium olsonii* under the effect of some antioxidant vitamins. *Global Journal of Biotechnology and Biochemistry* 3(1), 14–12.
- Agrawal, R., Sethiya, N.K., Mishra, S.H., 2013. Antidiabetic activity of alkaloids of *Aerva lanata* roots on streptozotocin-nicotinamide induced type-II diabetes in rats. *Pharmaceutical Biology* 51(5), 635-642. doi: 10.3109/13880209.2012.761244.
- Ahmadi, A., Khalili, M., Margedari, S., Nahri-Niknafs, B., 2015. The effects of solvent polarity on hypoglycaemic and Hypolipidemic Activities of *Securigera securidaca* (L). seeds, *Drug Research* 65(6). 10.1055/s-0035-1555773
- Ahmed, D., Kumar, V., Sharma, M., Verma, A., 2014. Target guided isolation, in-vitro antidiabetic, antioxidant activity and molecular docking studies of some flavonoids from *Albizia Lebbeck* Benth. bark. *BMC Complementary and Alternative Medicine* 14(155).
- Akinmoladun, A.C., Obuotor, E.B., Farombi, E.O., 2010. Evaluation of Antioxidant and Free Radical Scavenging Capacities of Some Nigerian Indigenous Medicinal Plants. *Journal of Medicinal Food* 13(2), 444-451. doi:10.1089/jmf.2008.0292

Alam, M.N., Bristi, N.J., Rafiquzzaman, M., 2013. Review on in vivo and in vitro methods evaluation of antioxidant activity. *Saudi Pharmaceutical Journal* 21, 143–152. <http://dx.doi.org/10.1016/j.jsps.2012.05.002>.

Alberti, K.G., Zimmet, P.Z., 1998. Definition, diagnosis and classification of diabetes mellitus and its complications. Part 1: diagnosis and classification of diabetes mellitus provisional report of a WHO consultation. *Diabetic Medicine* 15(7), 539-53.

Algariri, K., Atangwho, I.J., Meng, K.Y., Asmawi, M.Z., Sadikun, A., Murugaiyah, V., 2014. Antihyperglycaemic and Toxicological Evaluations of Extract and Fractions of *Gynura procumbens* Leaves. *Tropical Life Sciences Research* 25(1), 75–93.

Ali, H., Anwar, M., Ahmad, T., Chand, N., 2006. Diabetes Mellitus from Antiquity to Present Scenario and Contribution of Greco-Arab Physicians. *Journal of the International Society for the History of Islamic Medicine* 5, 45-50.

Alonso-Magdalena, P., Quesada, I., Nadal, A., 2011. Endocrine disruptors in the etiology of type 2 diabetes mellitus. *Nature Reviews Endocrinology* 7, 346-353. doi:10.1038/nrendo.2011.56.

Al-Romaiyan, A., Jayasri, M.A., Mathew, T.L., Huang, G.C., Amiel, S., Jones, P.M., Persaud, S.J., 2010. *Costus Pictus* Extracts Stimulate Insulin Secretion from Mouse and Human Islets of Langerhans *in vitro*. *Cellular Physiology and Biochemistry* 26, 1051-1058. doi: 10.1159/000324007.

American Diabetes Association (ADA), 2010. Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care* 33(1), S62–S69. doi: [10.2337/dc10-S062](https://doi.org/10.2337/dc10-S062).

American Diabetes Association (ADA), 2009. Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care* 32(1): S62–S67. doi: [10.2337/dc09-S062](https://doi.org/10.2337/dc09-S062).

Anderson, T., Schein, O.S., Mc Menamin, M.G., Cooney, D.A., 1974. Streptozotocin diabetes-correlation with extent of depression of pancreatic islet nicotinamide adenine dinucleotide. *Journal of Clinical Investigation* 54, 672-677.

Andrikopoulos, S., Blair, A.R., Deluca, N., Fam, B.C., Proietto, J., 2008. Evaluating the glucose tolerance test in mice. *American Journal of Physiology-Endocrinology and Metabolism* 295, E1323–E1332.

doi:10.1152/ajpendo.90617.2008.

Aniagu, S.O., Nwinyi, F.C., Akumka, D.D., Ajoku, G.A., Dzarma, S., Izebe, K.S., Ditse, M., Nwaneri, P.E.C., Wambabe, C., Gamaneal, K., 2005. Toxicity studies in rats fed nature cure bitters. *African Journal of Biotechnology* 4, 72–8.

Anusooriya, P., Malarvizhi, D., Gopalakrishnan, V.K., Devaki, K., 2014. Antioxidant and Antidiabetic Effect of Aqueous Fruit Extract of *Passiflora ligularis* Juss. on Streptozotocin Induced Diabetic Rats. *International Scholarly Research Notices*. <http://dx.doi.org/10.1155/2014/130342>.

Arif, I.A., Bakir, M.A., Khan, H.A., Farhan, A.H.A., Homaidan, A.A.A., Bahkali, A.H., Sadoon, M.A., Shobrak, M., 2010a. A Brief Review of Molecular Techniques to Assess Plant Diversity. *International Journal of Molecular Sciences* 11, 2079-2096; doi:10.3390/ijms11052079.

Arif, I.A., Bakir, M.A., Khan, H.A., Farhan, A.H.A., Homaidan, A.A.A., Bahkali, A.H., Sadoon, M.A., Shobrak, M., 2010b. Application of RAPD for molecular characterization of plant species of medicinal value from an arid environment. *Genetics and Molecular Research* 9(4), 2191-9198.

Aronoff, S.L., Berkowitz, K., Shreiner, B., Want, L., 2004b. Glucose Metabolism and Regulation: Beyond Insulin and Glucagon. *Diabetes Spectrum* 17(3), 183-190.

Arunachalam, K., Parimelazhagan, T., 2013. Antidiabetic activity of *Ficus amplissima* Smith. bark extract in streptozotocin induced diabetic rats, *Journal of Ethnopharmacology* 147, 302-310.

Ashok-Kumar, B.S., Lakshman, K., Jayaveera, K.N., Sheshadri-Shekar, D., Narayan-Swamy, V.B., Khan, S., Velumurga, C., 2011. In Vitro α -Amylase Inhibition and Antioxidant Activities of Methanolic Extract of *Amaranthus Caudatus* Linn. *Oman Medical Journal* 26(3), 166-170. DOI 10. 5001/omj.2011.40

Assady, S., Maor, G., Amit, M., Itskovitz-Eldor, J., Skorecki, K.L., Tzukerman, M., 2001. Insulin Production by Human Embryonic Stem Cells. *Diabetes* 50(8), 1691-1697. doi: 10.2337/diabetes.50.8.1691.

Atangwho, I.J., Egbung, G.E., Ahmad, M., Yam, M.F., Asmwi, M.Z., 2013. Antioxidant versus anti-diabetic properties of leaves from *Vernonia amygdalina* Del. growing in Malaysia. *Food Chemistry* 141(2013), 3428-3434, doi:10.1016/j.foodchem.2013.06.047.

Awata, T., Kawasaki, E., Ikegami, H., Kobayashi, T., Maruyama, T., Nakanishi, K., Shimada, A., Iizuka, H., Kurihara, S., Osaki, M., Uga, M., Kawabata, Y., Tanaka, S., Kanazawa, Y., Katayama, S., 2013. Insulin Gene/*IDDM2* Locus in Japanese Type 1 Diabetes: Contribution of Class I Alleles and Influence of Class I Subdivision in Susceptibility to Type 1 Diabetes. *The Journal of Clinical Endocrinology & Metabolism* 92(5), 1791-1795. <http://dx.doi.org/10.1210/jc.2006-2242>.

Ayala, J.E., Bracy, D.P., McGuinness, O.P., Wasserman, D.H., 2006. Considerations in the design of hyperinsulinemic-euglycemic clamps in the conscious mouse. *Diabetes* 55, 390–397.

Ayala, J.E., Verman, T.S., Morton, G.J., Obici, S., Croniger, C.M., Shulman, G.I., Wasserman, D.H., McGuinness, O.P., 2010. Standard operating procedures for describing and performing metabolic tests of glucose homeostasis in mice. *Disease Models and Mechanisms* 3(9-10), 525–534. doi: [10.1242/dmm.006239](https://doi.org/10.1242/dmm.006239).

Azman, M.A., Shafik, N.H., Maria, A.P., Maria, G.G., 2013. Solvent Effect on Antioxidant Activity and Total Phenolic Content of *Betula alba* and *Convolvulus arvensis*. *International Journal of Biological, Biomolecular, Agricultural, Food and Biotechnological Engineering* 7(5), 152-157.

Babu, P.V., Liu, D., Gilbert, E.R., 2013. Recent advances in understanding the anti-diabetic actions of dietary flavonoids. *Journal of Nutritional Biochemistry* 24(11), 1777-1789. [10.1016/j.jnutbio.2013.06.003](https://doi.org/10.1016/j.jnutbio.2013.06.003).

Badole, S., Patel, N., Bodhankar, S., Jain, B., Bhardwaj, S., 2006. Antihyperglycemic activity of aqueous extract of leaves of *Cocculus hirsutus* (L.) Diels in alloxan-induced diabetic mice. *Indian Journal of Pharmacology* 38(1), 49-53.

Baeyens, L., De, B.S., Lardon, J., Mfopou, J.K., Rooman, I., Bouwens, L., 2005. In vitro generation of insulin-producing beta cells from adult exocrine pancreatic cells. *Diabetologia* 48, 49-57.

Balekari, U., Veeresham, C., 2015. *In vivo* and *in vitro* Evaluation of Anti Diabetic and Insulin Secretagogue Activities of *Capparis zeylanica*. *Pharmacology and Pharmacy* 6, 311-320. <http://dx.doi.org/10.4236/pp.2015.67033>.

Bansal, V., Kalita, J., Misra, U.K., 2006. Diabetic neuropathy. *Postgraduate Medical Journal* 82, 95-100. doi: [10.1136/pgmj.2005.036137](https://doi.org/10.1136/pgmj.2005.036137).

Banting, F.G., Macleod, J., 1925. Nobel Lecture. Nobel Prizes and Laureates. The Nobel Prize in Physiology or Medicine.

Barapatre, A., Aadil, K.R., Tiwary, B.N., Jha, H., 2015. *In vitro* and antioxidant and antidiabetic activities of biomodified lignin from *Acacia nilotica* wood. International Journal of Biological Macromolecules 75, 81-89. doi:10.1016/j.ijbiomac.2015.01.012.

Bell, G.I., Pictet, R.L., Rutter, W.J., Cordell, B., Tischer, Edmund., Goodman, H.M., 1980. Sequence of the human insulin gene. Nature 284, 26 - 32 doi: 10.1038/284026a0.

Bendary, E., Francis, R.R., Ali, H.M.G., Sarwat, M.I., Hady, S.E., 2013. Antioxidant and structure–activity relationships (SARs) of some phenolic and anilines compounds. Annals of Agricultural Sciences 58(2), 173–181. doi:10.1016/j.aos.2013.07.002

Benhaddou-Andaloussi, Ali., Martineau, L., Vuong, T., Meddah, B., Madiraju, P., Settaf, A., Haddad, P.S., 2011. The In Vivo Antidiabetic Activity of *Nigella sativa* Is Mediated through Activation of the AMPK Pathway and Increased Muscle Glut4 Content. Evidence-Based Complementary and Alternative Medicine. doi: 10.1155/2011/538671.

Benzie, I.F., Szeto, Y.T., 1999. Total Antioxidant Capacity of Teas by the Ferric Reducing/Antioxidant Power Assay. Journal of Agricultural and Food Chemistry 47(2), 633–636.

Bernfeld, P., 1955. Amylase, alpha and beta, Methods. Enzymology 1, 149-158.

Bharati, D.R., Pal, R., Kar, S., Rekha, R., Yamuna., Basu, M., T.V., 2011. Prevalence and determinants of diabetes mellitus in Puducherry, South India. Journal of Pharmacy and Bioallied Sciences 3(4), 513–518. doi: 10.4103/0975-7406.90104

Bhutkar, M., Bhise, S., 2013. In vitro hypoglycaemic effects of *Albizia lebbek* (*A. lebbek*) and *Mucuna pruriens*. Asian Pacific Journal of Tropical Biomedicine 3(11), 866-870. : [10.1016/S2221-1691\(13\)60170-7](https://doi.org/10.1016/S2221-1691(13)60170-7).

Boaduo, N.K., Katerere, D., Eloff, J.N., Naidoo, V., 2014. Evaluation of six plant species used traditionally in the treatment and control of diabetes mellitus in South Africa using *in vitro* methods. Pharmaceutical Biology 52(6), 756-61. 10.3109/13880209.2013.869828.

Bothon, F.T.D., Debiton, E., Avlessi, F., Forestier, C., Teulade, J.C., Sohounhloue, D.K.C., 2013. In vitro biological effects of two anti-diabetic medicinal plants used in Benin as folk medicine. BMC Complementary and Alternative Medicine 13(51). <http://dx.doi.org/10.1186/1472-6882-13-51>

Boyda, H.N., Procyshyn, R.M., Heidi N. Boyda, Ric M. Procyshyn, Tse, L., Hawkes, E., Jin, C.H., Pang, C.C.Y., Honer, W.G., Barr, A.M., 2012. Differential effects of 3 classes of antidiabetic drugs on olanzapine-induced glucose dysregulation and insulin resistance in female rats. Journal of Psychiatry and Neuroscience 37(6), 407–415. doi: [10.1503/jpn.110140](https://doi.org/10.1503/jpn.110140).

Brain KR. and Tuner TD, 1975. The practical evaluation of phytopharmaceuticals. Wright Scientectica Publishers, Bristol. 57-58.

Brand-Williams, W., Cuvelier, M.E., Berset, C., 1995. Use of a free radical method to evaluate anti-oxidant activity. LWT-Food Science and Technology 28, 25-30.

Brigand, L.L., Virsolvy, A., Manechez, D., Godfroid, J.J., Guardiola-Lemaître, B., Gribble, F.M., Ashcroft, F.M., Bataille, D., 1999. In vitro mechanism of action on insulin release of S-22068, a new putative antidiabetic compound. British Journal of Pharmacology 128(5), 1021-1026. doi: [10.1038/sj.bjp.0702883](https://doi.org/10.1038/sj.bjp.0702883).

Brownlee, M., 2005. The Pathobiology of Diabetic Complications, A Unifying Mechanism. Diabetes 54(6), 1615-1625 doi: [10.2337/diabetes.54.6.1615](https://doi.org/10.2337/diabetes.54.6.1615).

Bruneton, J., 1999. Pharmacognosy, Phytochemistry and Medicinal Plants. Intercept. Ltd. England, U.K.

Cade, W.T., 2008. Diabetes-Related Microvascular and Macrovascular Diseases in the Physical Therapy Setting. Physical Therapy 88, 1322-1335. doi: [10.2522/ptj.20080008](https://doi.org/10.2522/ptj.20080008).

Chakraborty, U., Das, H., 2010. Antidiabetic and Antioxidant Activities of *Cinnamomum tamala* Leaf Extracts in STZ-Treated Diabetic Rats. Global Journal of Biotechnology and Biochemistry 5(1), 12-18.

Chan, C.H., Ngoh, G.C., Yusoff, R., 2012. A brief review on anti diabetic plants: Global distribution, active ingredients, extraction techniques and acting mechanisms. Pharmacognosy Reviews 6(11), 22–28. doi: [10.4103/0973-7847.95854](https://doi.org/10.4103/0973-7847.95854).

Chance, R.E., Frank, B.H., 1993. Research, Development, Production, and Safety of Biosynthetic Human Insulin. *Diabetes Care* 16(3), 133-142.

Chandramohan, G., Ignacimuthu, S., Pugalendi, K.V., 2008. A novel compound from *Caearia esculenta* (Roxb.) root and its effect on carbohydrate metabolism in streptozotocin-diabetic rats. *European Journal of pharmacology* 590, 437-443. doi: 10.1016/j.ejphar.2008.02.082.

Charles, F., Howard, Jr., 1972. Beaverton, Oregon, Streptozotocin induced Diabetes Mellitus by Direct Pancreatic Infusion in *Macaca Nemestrina*, *Diabetes* 27, 138-42.

Chatterjee, S., Chatterjee, S., Dey, K.K., Dutta, S., 2013. Study of Antioxidant Activity and Immune Stimulating Potency of the Ethnomedicinal Plant, *Cassia alata* (L.) Roxb., *Medicinal and Aromatic Plants* 2(4).

Chaturvedi, P., George, S., Milinganvo, M., Tripathi, Y.B., 2004. Effect of *Momordica charantia* on lipid profile and oral glucose tolerance in diabetic rats. *Phytotherapy Research* 18(11), 954-6.

Chatzigeorgiou, A., Halapas, A., Kalafatakia, K., Kamper, E., 2009. The Use of Animal Models in the Study of Diabetes Mellitus. *In Vivo* 23, 245-258.

Chauhan, A., Goyal, M.K., Chauhan, P., 2014. GC-MS Technique and its Analytical Applications in Science and Technology. *J Anal Bioanal Tech* 5(6), 1-5. doi: 10.4172/2155-9872.1000222.

Cheeseman, K.H., Slater, T.F., 1993. An introduction to free radicals chemistry. *British Medical Bulletin* 49(3), 481-93.

Chen, Z.C., Zhang, S.L., Yan, L., Wu, M.C., Chen, L.H., Ji, L.N., 2011. Association between side effects of oral anti-diabetic drugs and self-reported mental health and quality of life among patients with type 2 diabetes. *Zhonghua Yi Xue Zhi* 91(4), 229-33.

Cnop, M., Welsh, N., Jonas, J.C., Jorns, A., Lenzen, S., Eizirik, D.L., 2005. Mechanisms of Pancreatic β -Cell Death in Type 1 and Type 2 Diabetes. Many Differences, Few Similarities. *Diabetes* 54(2), S97-107.

Coleman, D.L., 1992. The influence of genetic background on the expression of mutations at the diabetes (db) locus in the mouse. VI: Hepatic malic enzyme activity is associated with diabetes severity. *Metabolism* 41, 1134-1136.

Colombo, C., Haluzik, M., Cutson, J.J., Dietz, K.R., Marcus-Samuels, B., Vinson, C., Gavrilova, O., Reitman, M.L., 2003. Opposite effects of background genotype on muscle and liver insulin sensitivity of lipotrophic mice. Role of triglyceride clearance. *Journal of Biological Chemistry* 278, 3992–3999.

Culley, T.M., Stamper, T.I., Stokes, R.L., Brzyski, J.R., Hardiman, N.A., Klooster, M.R., Merritt, B.J., 2013. An Efficient Technique for Primer Development and Application that Integrates Fluorescent Labeling and Multiplex PCR. *Applications in Plant Sciences* 1(10), 1-10.

Da, O., Coulibaly, M.T., Yerbanga, R.S., Koama, B., Ouedraogo, N., Tamboura, S., Dakyyo, Z.P., Sekhoacha, M.P., Hikiema, J.B., Ouedraogo, G.A., Matsabina, M.G., Ouedraogo, J.B., 2014. Antiplasmodial and Antioxidant activities of Saye: A Traditional Herbal Remedy for Malaria, *American Journal of Biochemistry and Molecular Biology* 4(4), 155-166. [10.3923/ajbmb.2014.155.166](https://doi.org/10.3923/ajbmb.2014.155.166).

Daisy, P., Jasmine, R., Ignacimuthu, S., Murugan, E., 2009. A novel steroid from *Elephantopus scaber* L. an ethnomedicinal plant with antidiabetic activity. *Phytomedicine* 16(2-3), 252-257.

Davidson, M.B., 2002. Counterpoint: The Oral Glucose Tolerance Test Is Superfluous. *Diabetes Care* 25(10), 1883-1885. doi: 10.2337/diacare.25.10.1883.

Dean, L., McEntyre, J., 2004. The Genetic Landscape of Diabetes [Internet]. Bethesda: National Center for Biotechnology Information (US), Chapter 2, Genetic Factors in Type 1 Diabetes. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK1662/>

Devendra, K., Kiran, D., Ritesh, V., Satyendra, B., Abhishek, K., 2013. To Evaluation of Total Phenolics and Flavonoids in Different Plant of Chhattisgarh. *Journal of Pharmacognosy and Phytochemistry* 2(4), 116-118.

Devi, W.I., Guruaribam, S.D., Chingakham, B.S., 2011. Traditional Herbal Medicine Used For the Treatment of Diabetes in Manipur, India. *Research Journal of Pharmaceutical, Biological and Chemical Sciences* 2, 709-715.

Diana, G., Richard, G., 2009. Management of diabetes mellitus. A guide to the pattern approach. 6th edition, Springer publishing, LLC.

Dodson, G., 2014. Dorothy Hodgkin [internet]. Diapedia 1104105146 rev.no.6. Available from: <http://dx.doi.org/10.14496/dia.1104105146.6>

Duh, P.D., Du, P.C., Yen, G.C., 1999. Action of methanolic extract of mung bean hulls as inhibitors of lipid peroxidation and non-lipid oxidative damage. *Food and Chemical Toxicology* 37(11), 1055-1061.

Dunn, W.L., 1974. *Handbook of histopathological and histochemical techniques*, 3rd edition, Redwood: Bun, Ltd. Trowbridge and Esher.

Elmazar, M.M., El-Abhar, H.S., Schaalán, M.F., Farag, N.A., 2013. Phytol/Phytanic Acid and Insulin Resistance: Potential Role of Phytanic Acid Proven by Docking Simulation and Modulation of Biochemical Alterations. *Plos One* 8(1). 10.1371/journal.pone.0045638

Fawzy, G.A., Abdallaha, H.M., Marzoukb, M.S.A., Solimana, F.M., Sleem, A.A., 2008. Antidiabetic and Antioxidant Activities of Major Flavonoids of *Cynanchum acutum* L. (Asclepiadaceae) Growing in Egypt. *Zeitschrift fur Naturforschung C, Journal of Biosciences* 63(9-10), 658-662.

Feng, J., Yang, X.W., Wang, R.F., 2011. Bio-assay guided isolation and identification of α -glucosidase inhibitors from the leaves of *Aquilaria sinensis*. *Phytochemistry* 72, 242-247. <http://dx.doi.org/10.1016/j.phytochem.2010.11.025>

Fowler, M.J., 2008. Microvascular and Macrovascular Complications of Diabetes. *Clinical Diabetes* 26(2), 77-82.

Frevchet, P., Roth, J., Neville, D.M., 1971. Insulin Receptors in the Liver: Specific Binding of [¹²⁵I] Insulin to the Plasma Membrane and Its Relation to Insulin Bioactivity. *Proceedings of the National Academy of Sciences of U S A* 68(8), 1833-1837.

Fujikawa, T., O, S.H., Pi, L., Hatch, H.M., Shupe, T., Petersen, B.E., 2005. Teratoma Formation Leads to Failure of Treatment for Type I Diabetes Using Embryonic Stem Cell-Derived Insulin-Producing Cells. *American Journal of Pathology* 166(6), 1781–1791. doi: 10.1016/S0002-9440(10)62488-1.

Gahlaut, A., Chhillar, A.K., 2013. Evaluation of antibacterial potential of plant extracts using resazurin based microtiter dilution assay. *International Journal of Pharmacy and Pharmaceutical Sciences* 5(2), 372-376.

Geiser, F., 2004. Metabolic rate and body temperature reduction during hibernation and daily torpor. *Annual Review of Physiology* 66, 239–274.

Genentech., 1978. Media press releases, Genentech, South San Francisco, California.

Girish, D., Shridhar D, 2007. Sushruta – the Clinician – Teacher par Excellence. Indian Journal of Chest Disease and Allied Science 49, 243-244.

Goeddel, D.V., Kleid, F.B., Heyneker, H.L., Yansura, R.C., Hirosef, Tadaaki., Kraszewskit, A., Itakuraf, K, Riggst, A.D., 1979. Expression in *Escherichia coli* of chemically synthesized genes for human insulin. Proceedings of the National Academy of Sciences 76(1), 106-110.

Gokce, G., Haznedaroglu, M.Z., 2008. Evaluation of antidiabetic, antioxidant and vasoprotective effects of *Posidonia oceanica* extract. Journal of Ethnopharmacology 115(1), 122–130;

Gomathi, D., Kalaiselvi, M., Ravikumar, G., Devaki, K., Uma, C., 2015. GC-MS analysis of bioactive compounds from the whole plant ethanolic extract of *Evolvulus alsinoides* (L). L. Journal of Food Science and Technology 52(2), 1212-1207, doi: 10.1007/s13197-013-1105-9.

Goren, H.J., Kulkarni, RN., Kahn, C.R., 2004. Glucose homeostasis and tissue transcript content of insulin signaling intermediates in four inbred strains of mice: C57BL/6, C57BLKS/6, DBA/2, and 129X1. Endocrinology 145, 3307–3323.

Gray, A.M., Flatt, P.R., 1999. Insulin-secreting activity of the traditional antidiabetic plant *Viscum album* (mistletoe). Journal of Endocrinology 160, 409-414. doi: 10.1677/joe.0.1600409

Gross, J.L., De, A.M.J., Silveiro, S.P., Canani, L.H., Caramori, M.L., Zelmanovitz, T., 2005. Diabetic nephropathy: diagnosis, prevention, and treatment. Diabetes Care 28(1), 164-76.

Gupta, R., Mathur, M., Bajaj, V.K., Katariya, P., yadav, S., Kamal, R., Gupta, R.S., 2012. Evaluation of antidiabetic and antioxidant activity of *Moringa oleifera* in experimental diabetes. Journal of Diabetes 4(2), 164-171. doi: 10.1111/j.1753-0407.2011.00173.x.

Hagerman, A.E., Riedl, K.M., Jones, G.A., Sovik, K.N., Ritchard, N.T., Hartzfeld, P.W., 1998. High molecular weight plant poliphenolics (tannins) as biological antioxidants. Journal of Agriculture Food chemistry 46(5), 1887-1892. DOI: 10.1021/jf970975b

Halliwell, B., 1995. How to characterize an antioxidant-An update. *Biochemical Society Symposium* 61, 73–101

Hanhineva, K., Törrönen, R., Bondia-Pons, I., Pekkinen, J., Kolehmainen, M., Mykkänen, H., Pautanen, K., 2010. Impact of dietary polyphenols on carbohydrate metabolism. *International Journal of Molecular Sciences* 11(4), 1365-1402

Harbilas, D., Martineau, L.C., Harris, C.S., Adeyiwola-Spor, D.C., Saleem, A., Lambert, J., Caves, D., Johns, T., Prenki, M., Cuerrier, A., Arnason, J.T., Bennett, S.A., Haddad, P.S., 2009. Evaluation of the antidiabetic potential of selected medicinal plant extracts from the Canadian boreal forest used to treat symptoms of diabetes: part II. *Canadian Journal of Physiology Pharmacology* 87(6), 479-92. doi: 10.1139/y09-029.

Harborne, J.B., 1998. *Phytochemical Methods A Guide to Modern Techniques of Plant Analysis*. 3rd edition, Chapman and Hall publisher, an imprint of Thomson Science. London, UK.

Hatami, T., Emami, S.A., Miraghaee, S.S., Mojarrab, M., 2014. Total Phenolic Contents and Antioxidant Activities of Different Extracts and Fractions from the Aerial Parts of *Artemisia biennis* Willd. *Iranian Journal of Pharmaceutical Research* 13(2), 551–559.

Hays, J.H., Gorman, R.T., Shakir, K.M., 2002. Results of use of metformin and replacement of starch with saturated fat in diets of patients with type 2 diabetes. *Endocrine Practice* 8(3), 177-83

Heftmann, E., (1992). *Chromatography: fundamentals and applications of chromatography and related differential Migration Methods*. 5th edition, Journal of Chromatography Library Series 51.

Heijboer, A.C., Donga, E., Voshol, P.J., Dang, Z.C., Havekes, L.M., Romijn, J.A., Corssmit, E.P., 2005. Sixteen hours of fasting differentially affects hepatic and muscle insulin sensitivity in mice. *Journal of Lipid Research* 46, 582–588.

Hokanson, S.C., Szewc-McFadden, A.K., Lamboy, W.F., McFerson, J.R., 1998. Microsatellite (SSR) markers reveal genetic identities, genetic diversity and relationships in a *Malus domestica* borkh. Core subset collection. *Theoretical and Applied Genetics* 97, 671-683.

Holme, L., Hegland, A., Hjermer, I., Leren, P., Lergen, P.G.L., 1980. Four and two third years incidence of coronary heart disease of middle aged men. The Oslo study. *American Journal of Epidemiology* 112, 149-154.

Holt, R.I.G., Cockram, C., Flyvbjerg, A., Goldstein, B.J., 2010. A textbook of diabetes. History of diabetes mellitus. 4th edition, Blackwell Publishing Ltd.

Hotwani, K., Baliga, S., Sharma, K., 2014. Phytodentistry: use of medicinal plants. *Journal of Complimentary & Integrative Medicine* 11(4), 233-51. <http://dx.doi.org/10.1515/jcim-2013-0015>

International Diabetes Federation (IDF)., 2014. Diabetes Atlas update poster, 6th edition. Brussels, Belgium: International Diabetes Federation.

Irshad, Md., Zafaryab, Md, Singh, M., Rizvi, M.A., 2012. Comparative analysis of the antioxidant activity of *Cassia fistula* extracts. *International Journal of Medicinal Chemistry* 2012, 6 pages, doi:10.1155/2012/157125.

Isah, A., Abdullahi, M., Tsado, M.J., 2015. Evaluation of Phytochemical, Anti-nutritional and Antioxidant Potentials of Flower and Seed Methanol Extracts of *Senna alata* L. Grown in Nigeria. *American Journal of Applied Chemistry* 3(3), 93-100. doi: 10.11648/j.ajac.20150303.12

Islam, M.A., Akhtar, M.A., Khan, M.R.I., Hossain, M.S., Alam, A.H.M.K., Wahed, M.I.I., Amran, M.S., Rahman, B.M., Ahmed, M., 2009. Oral Glucose Tolerance Test (OGTT) in normal control and glucose induced hyperglycemic rats with *Coccinia cordifolia* L. and *Catharanthus roseus* L., *Pakistan Journal of Pharmacological Science* 22(4), 402-404.

Ismail, M., Mariod, A., Bagalkotkar, G., Ling, H.S., 2010. Fatty acid composition and antioxidant activity of oils from two cultivars of Cantaloupe extracted by supercritical fluid extraction. *Grasas Y Aceites*, 61(1), 37-44. 10.3989/gya.053909

Iwai, K., 2006. Antidiabetic and antioxidant effects of polyphenols in brown alga *Ecklonia stolonifera* in genetically diabetic KK-A(y) mice. *Plant Foods for Human Nutrition* 63(4), 163-169. doi: 10.1007/s11130-008-0098-4.

Iwai, K., Kim, M.Y., Onodera, .A, Matsue, H., 2006. Alpha-glucosidase inhibitory and antihyperglycemic effects of polyphenols in the fruit of *Viburnum dilatatum* Thunb. *Journal of Agricultural and Food Chemistry* 54(13), 4588-4592.

Jager, J., Gremeaux, T., Cormont, M., Le. Y., Marchand-Brustel., Jean-François, T., 2007. Interleukin-1beta-induced insulin resistance in adipocytes through down-regulation of insulin receptor substrate-1 expression. *Endocrinology* 148(1), 241–251. doi: 10.1210/en.2006-0692.

Jagetia, G.C., Rao, S.K., Baliga, M.S., Babu, K.S., 2004. The Evaluation of Nitric Oxide Scavenging Activity of Certain Herbal Formulations in vitro: A Preliminary Study. *Phytotherapy Research* 18(7), 561–565.

Jananie, R.K., Priya, V., Vijayalakshmi, K., 2011. Phytoconstituents evaluation by GC-MS and anti-hyperglycemic activity of *Cynodon dactylon* on streptozotocin induced diabetes in rats. *Journal of Chemical Pharmaceutical Research* 3(4), 460-466.

Jarald, E.E., Joshi, S.B., Jain, D.C., Edwin, S., 2013. Biochemical Evaluation of the Hypoglycemic Effects of Extract and Fraction of *Cassia fistula* Linn. in Alloxan-induced Diabetic Rats. *Indian Journal of Pharmaceutical Sciences* 75(4), 427–434. doi: 10.4103/0250-474X.119823.

Jederstrom, G., Grasjo, J., Nordin, A., Sjöholm, I., Andersson, A., 2005. Blood glucose-lowering activity of a hyaluronan-insulin complex after oral administration to rats with diabetes. *Diabetes Technology & Therapeutics* 7, 948-957.

Jensen, J., Rustad, P.I., Kolnes, A.J., Yu-Chiang, L., 2011. The Role of Skeletal Muscle Glycogen Breakdown for Regulation of Insulin Sensitivity by Exercise. *Frontiers in Physiology* 2(112). doi: 10.3389/fphys.2011.00112.

Jimoh, M. A., Edeoga, H. O., Omosun, G., 2013. DNA Fingerprinting of Six Senna Species and the Taxonomic Implication. *International Journal of Advanced Research in Biotechnology* 1(6), 022-026.

Johansen, J.S., Harris, A.K., Rychly, D.J., Ergul, A., 2005. Oxidative stress and the use of antioxidants in diabetes: Linking basic science to clinical practice. *Cardiovascular Diabetology* 4(5). doi:10.1186/1475-2840-4-5

Johna, J., Mehtab, A., Mehtab, P., 2012. Evaluation of antioxidant and anticancer potential of *Cassia tora* leaves, *Asian Journal of Traditional Medicines* 7(6), 260-267.

Kahn, C.R., Roth, J., 2004. Berson, Yalow, and the JCI: the agony and the ecstasy. *Journal of Clinical Investigation* 114(8), 1051–1054. doi: [10.1172/JCI200423316](https://doi.org/10.1172/JCI200423316)

Kahn, R., Weir, G.C., King, G.L., Jacobson, A.M., Moses, A.C., Smith, R.J., 2005. Joslin's Diabetes Mellitus. 14th edition, Joslin Diabetes Center.

Kalailingama, P., Kannaiana, B., Tamilmanib, E., Kaliaperumal, R., 2014. Efficacy of natural diosgenin on cardiovascular risk, insulin secretion, and beta cells in streptozotocin (STZ)-induced diabetic rats, *Phytomedicine* 21, 1154–1161.

Kalra, V.P., 1998. Handbook of reference methods for plant analysis, CRC press. London, New York.

Kaneto, H., Kajimoto, Y., Miyagawa, J., Matsuoka, T., Fujitani, Y., Umayahara, Y., Hanafusa, T., Matsuzawa, Y., Yamasaki, Y., Hori, M., 1999. Beneficial effects of antioxidants in diabetes: possible protection of pancreatic beta-cells against glucose toxicity. *Diabetes* 48(12), 2398-2406

Kanwar, Y.S., Wada, J., Sun, L., Xie, P., Wallner, E.I., Chen, S., Danesh, F.R., 2008. Diabetic nephropathy: mechanisms of renal disease progression. *Experimental Biology and Medicine* 233(1), 4-11.

Kar, A., Choudhary, B.K., Bandyopadhyay, N.G., 1999. Preliminary studies on the inorganic constituents of some indigenous hypoglycaemic herbs on oral glucose tolerance test. *Journal of Ethnopharmacology* 64(2), 179-184.

Karan, S.K., Mondal, A., Mishra, S.K., Pal, D., Rout, K.K., 2013. Antidiabetic effect of *Streblus asper* in streptozotocin-induced diabetic rats. *Pharmaceutical Biology* 51(3), 369-75. doi: 10.3109/13880209.2012.73053.

Kargar, C., Ktorza, A., 2008. Anatomical versus functional beta-cell mass in experimental diabetes. *Diabetes, Obesity and Metabolism* 10(4), 43–53.

Karuppusamy, A., Thangaraj, P., 2013. Antidiabetic activity of *Ficus amplissima* Smith. Bark extract in streptozotocin induced diabetic rats. *Journal of Ethnopharmacology* 147: 302-310. <http://dx.doi.org/10.1016/j.jep.2013.03.004>

Kasabri, V., Abu-Dahab, R., Afifi, F.U., Naffa, R., Majdalaw, L., 2012a. Modulation of pancreatic MIN6 insulin secretion and proliferation and extrapancreatic glucose absorption with *Achillea santolina*, *Eryngium creticum* and *Pistacia atlantica* extracts: *in vitro* evaluation. *Journal of Experimental and Integrative Medicine* 2(3), 245-254. [10.5455/jeim.120612.or.036](http://dx.doi.org/10.5455/jeim.120612.or.036).

Kasabri, V., Abu-Dahab, R., Afifi, F.U., Naffa, R., Majdalawi, L., Shawash, H., 2012b. In vitro Modulation of Pancreatic MIN6 Insulin Secretion and Proliferation

and Extrapancreatic Glucose Absorption by *Paronychia argentea*, *Rheum ribes* and *Teucrium polium* Extracts. Jordan Journal of Pharmaceutical Sciences, 5(3), 203-219.

Kasabri, V., Afifi, F.U., Bustanji, Y., Mashallah, S., Naffa, R., Mehdi, H.S., 2015. *In vitro* Enhancement of Pancreatic β cells MIN6 Proliferation by insulintropic *Gymnema sylvestre* Aqueous Extracts: Evidence-based Regenerative Therapeutic Capacity of a Medicinal Herb. British Journal of Medicine and Medical Research 7(3), 180-194

Kasetti, R.B., Rajasekhar, M.D., Kondeti, V.K., Fatima, S.S., Kumar, E.G.T., wapna, S., Ramesh, B., Rao, C.P., 2010. Antihyperglycemic and antihyperlipidemic activities of methanol:water (4:1) fraction isolated from aqueous extract of *Syzygium alternifolium* seeds in streptozotocin induced diabetic rats. Food and Chemical Toxicology 48, 1078-1084. [doi:10.1016/j.fct.2010.01.029](https://doi.org/10.1016/j.fct.2010.01.029)

Kashani, H.H., Hoseini, E.S., Nikzad, H., Aarabi, M.H., 2012. Pharmacological properties of medicinal herbs by focus on secondary metabolites. Life Science Journal 9(1), 509-520.

Katz, E.D., 1995, High Performance Liquid Chromatography: Principles and Methods in Biotechnology. 1st edition, Wiley publication,

Kaur, G., Kamboj, P., Kalia, A.N., 2011. Antidiabetic and anti-hypercholesterolemic effects of aerial parts of *Sida cordifolia* Linn. on Streptozotocin-induced diabetic rats. Indian Journal of Natural Products and Resources 2(4), 428-434.

Kaveeshwar, S.A., Cornwall, J., 2014. The current state of diabetes mellitus in India. Australasian Medical Journal 7(1), 45-48. doi: 10.4066/AMJ.2013.1979

Kaveeshwar, S.A., Cornwall, J., 2014. The current state of diabetes mellitus in India. Australasian Medical Journal 7(1), 45–48. doi: 10.4066/AMJ.2013.1979

Kazeem, M.I., Adamson, J.O., Ogunwande, I.A., 2013. Modes of Inhibition of α -Amylase and α -Glucosidase by Aqueous Extract of *Morinda lucida* Benth Leaf. BioMed Research International <http://dx.doi.org/10.1155/2013/527570>

Kedare, S.B., Singh, R.P., 2011. Genesis and development of DPPH method of antioxidant assay. Journal of Food Science and Technology 48(4), 412–422. doi: 10.1007/s13197-011-0251-1

Khan, R.A., Sahreen, M.R., Ahmad, M., 2012. Evaluation of phenolic contents and antioxidant activity of various solvent extracts of *Sonchus asper* (L.) Hill. Chemistry Central Journal 6(12). doi:10.1186/1752-153X-6-12

King, A.J.F., 2012. The use of animal models in diabetes research. British Journal of Pharmacology 166(3), 877–894. doi: [10.1111/j.1476-5381.2012.01911.x](https://doi.org/10.1111/j.1476-5381.2012.01911.x).

Kooy, A., Jager, J.D., Lehert, P., Bets, D., Wulffele, M.G., Donker, A.J., Stehouwer, C.D., 2009. Long-term effects of metformin on metabolism and microvascular and macrovascular disease in patients with type 2 diabetes mellitus. Archives of internal medicine 169(6), 616-25. doi: <http://dx.doi.org/10.1001/archinternmed.2009.20>.

Kraime, M.R., Tisch, R.M., 1999. The Role of Environmental Factors in Insulin Dependent Diabetes Mellitus: An Unresolved Issue. Environmental Health Perspectives 107(5), 777-781.

Krentz, A.J., Hitman, G.A., 2011. Sir Harold Himsworth and Insulin insensitivity 75 years on. Diabetic Medicine 28(12). DOI: [10.1111/j.1464-5491.2011.03488.x](https://doi.org/10.1111/j.1464-5491.2011.03488.x)

Kulkarni, R.N., Almind, K., Goren, H.J., Winnay, J.N., Ueki, K., Okada, T., Kahn, C.R., 2003. Impact of genetic background on development of hyperinsulinemia and diabetes in insulin receptor/insulin receptor substrate-1 double heterozygous mice. Diabetes 52, 1528–1534.

Kumar, M., Sharma, S., Vasudeva, N., 2013. In Vivo Assessment of Antihyperglycemic and Antioxidant Activity from Oil of Seeds of *Brassica Nigra* in Streptozotocin Induced Diabetic Rats. Advanced Pharmaceutical Bulletin 3(2), 359–365. doi: [10.5681/apb.2013.058](https://doi.org/10.5681/apb.2013.058).

Kumar, S., Kumar, D., Manjusha., Saroha, K., Singh, N., Vashishta, B., 2008. Antioxidant and free radical scavenging potential of *Citrullus colocynthis* (L.) Schrad. methanolic fruit extract. Acta Pharmaceutica 58(2), 215–220. doi: [10.2478/v10007-008-0008-1](https://doi.org/10.2478/v10007-008-0008-1).

Kumar, S., Vasudeva, N., Sharma, S., 2012. GC-MS analysis and screening of antidiabetic, antioxidant and hypolipidemic potential of *Cinnamomum tamala* oil in streptozotocin induced diabetes mellitus in rats. Cardiovascular Diabetology 11(95), 1-11.

Lagathu, C., Bastard, J.P., Auclair, M., Maachi, M., Capeau, J., Caron, M., 2003. Chronic interleukin-6 (IL-6) treatment increased IL-6 secretion and induced insulin resistance in adipocyte: prevention by rosiglitazone. *Biochemical and Biophysical Research Communications* 311(2), 372-9.

Landon, M.B., Gabbe, S.G., 2011. Gestational diabetes mellitus. *Obstetrics & Gynecology* 118(6): 1379-1393. doi: 10.1097/AOG.0b013e31823974e2.

Lanjhiyana, S., Garabadu, D., Ahirwar, D., Bigoniya, P., Rana, A.C., Patra, K.C., Lanjhiyana, S.K., Karuppaih, M., 2011. Antidiabetic activity of methanolic extract of stem bark of *Elaeodendron glaucum* Pers. in Alloxanized rat model. *Advances in Applied Science Research* 2(1), 47-62.

Lasker, S.P., McLachlan, C.S., Wang, L., Ali, S.M.K., Jelinek, H.F., 2010. Discovery, treatment and management of diabetes. *Journal of Diabetology* 1(1).

Lauro, F.V., Francisco, D.C., Lenin, H.H., Elodia, G.G., Eduardo, P.G., Marcela, R.N., Bety, S.A., 2014. New steroid derivative with hypoglycemic activity. *International Journal of Clinical and Experimental Medicine* 7(11), 3983–3991.

Levinthal, G.N., Tavill, A.S., 1999. Liver Disease and Diabetes Mellitus. *Clinical diabetes* 17(85).

Li, F., L, O., Gao, D., Peng, Y., 2009. The Optimal Extraction Parameters and Anti-Diabetic Activity of Flavonoids from *Ipomoea Batatas* Leaf. *African Journal of Traditional, Complementary and Alternative Medicine* 6(2), 195–202.

Lobo, V., Patil, A., Phatak, A., Chandra, N., 2010. Free radicals, antioxidants and functional foods: Impact on human health. *Pharmacognosy Reviews* 4(8), 118–126. doi: 10.4103/0973-7847.70902.

Luft, R., 1989. Discovery of the pancreatic origin of diabetes. *Diabetologia* 32(7), 399-401.

Lumelsky, N., Blondel, O., Laeng, P., Velasco, I., Ravin, R., McKay, R., 2001. Differentiation of Embryonic Stem Cells to Insulin-Secreting Structures Similar to Pancreatic Islets. *Science* 292(5520), 1389-1394. DOI: 10.1126/science.1058866.

Lyssenko, V., Laakso, M., 2009. Genetic Screening for the Risk of Type 2, Diabetes, Worthless or valuable? *Diabetes Care* 36(2), S120-S126. doi: 10.2337/dcS13-2009.

Macotela, Y., Boucher, J., Tran, T.T., Kahn, C.R., 2009. Gender and depot differences in adipocyte insulin sensitivity and glucose metabolism. *Diabetes* 58, 803–812.

Madigan, C., Ryan, M., Owens, D., Collins, P., Tomkin, G.H., 2000. Dietary unsaturated fatty acids in type 2 diabetes: higher levels of postprandial lipoprotein on a linoleic acid-rich sunflower oil diet compared with an oleic acid-rich olive oil diet. *Diabetes Care* 23(10), 1472-1477. [10.2337/diacare.23.10.1472](https://doi.org/10.2337/diacare.23.10.1472)

Mahendran, G., Manoj, M., Muruges, E., Kumar, S.R., Shanmughavel, P., Prasad, R.K.J., Bai, N.V., 2014. In vivo anti-diabetic, antioxidant and molecular docking studies of 1, 2, 8-trihydroxy-6-methoxy xanthone and 1, 2-dihydroxy-6-methoxyxanthone-8-O- β -D-xylopyranosyl isolated from *Swertia corymbosa*. *Phytomedicine* 21(11), 1237-1248. doi: [10.1016/j.phymed.2014.06.011](https://doi.org/10.1016/j.phymed.2014.06.011).

Mai, T.T., Thu, N.N., Tien, G.P., Van-Chuyen, N., 2007. Alpha-glucosidase inhibitory and antioxidant activities of Vietnamese edible plants and their relationships with polyphenol contents. *Journal of Nutritional Science Vitaminology* 53(3), 267-276.

Malaisse-Lagae, F., Sener, A., Malaisse, W.J., 1983. Contrasting modes of action of D-glucose and 3-O-methyl-D-glucose as protectors of the rat pancreatic B-cell against alloxan. *Biochimica et Biophysica Acta* 762(1), 36-43. DOI: [10.1016/0167-4889\(83\)90114-3](https://doi.org/10.1016/0167-4889(83)90114-3)

Mandal, J., Parija, S.C., 2013. Ethics of involving animals in research. *Tropical Parasitology* 3(1), 4–6. doi: [10.4103/2229-5070.113884](https://doi.org/10.4103/2229-5070.113884).

Manohar, V., Talpur, N.A., Echard, B.W., Lieberman, S., Preuss, H.G., 2002. Effects of a water-soluble extract of maitake mushroom on circulating glucose/insulin concentrations in KK mice. *Diabetes, Obesity and Metabolism* 4(1), 43–48.

Maraschin, J.F., 2013. Title: Classification of Diabetes. In *Advances in Experimental Medicine and Biology*, book title. Diabetes, Eds Ahmad, S.I., Publisher: Springer New York 12-19.

Marcocci, L., Maguire, J.J., Droy-Lefaix, M.T., Packer, L., 1994. The Nitric oxide scavenging property *Ginkgo biloba* extract EGb 76. *Biochemical and Biophysical Research Communications* 201, 748-755.

Mari, A., Pacini, G., Murphy, E., Ludvik, B., Nolan, J.J., 2001. A Model-Based Method for Assessing Insulin Sensitivity from the Oral Glucose Tolerance Test. *Diabetes Care* 24(3), 539-548, doi: 10.2337/diacare.24.3.539.

Maria, G., 2011. High Performance Liquid Chromatography (HPLC) and Related Techniques, Separation, Detection and Determination of Impurities by HPLC. Available from: www.phar.kufauniv.com/staff/Dr.%20Al-Sharifi/...1/chapter2-7-1.pdf

Marles, R.J., Farnsworth, N.R., 1995. Antidiabetic plants and their active constituents. *Phytomedicine* 2, 137-189. doi: 10.1016/S0944-7113(11)80059-0

Martha, R., Gutierrez, P., Baez, E.G., 2014. Evaluation of antidiabetic, antioxidant and antiglycating activities of the *Eysenhardtia polystachya*. *Pharmacognosy Magazine* 10(2), S404-S419. doi: [10.4103/0973-1296.133295](https://doi.org/10.4103/0973-1296.133295).

Matough, F.A., Budin, S.b., Hamid, Z.A., Alwahaibi, N., Mohamed, J., 2012. The Role of Oxidative Stress and Antioxidants in Diabetic Complications. *Sultan Qaboos University Medical Journal* 12(1), 5-18.

Matsuda, M., DeFronzo, R.A., 1999. Insulin Sensitivity Indices Obtained From Oral Glucose Tolerance Testing, *Epidemiology/Health Services/Psychosocial Research*. *Diabetes Care* 22, 1462–1470.

Mayakrishnan, V., Veluswamy, S., Sundaram, K.S., Kannappan, P., Abdullah, N., 2013. Free radical scavenging potential of *Lagenaria siceraria* (Molina) Standl fruits extract, *Asian Pacific Journal of Tropical Medicine* 6(1), 20–26. doi:[10.1016/S1995-7645\(12\)60195-3](https://doi.org/10.1016/S1995-7645(12)60195-3)

Mazur, A., 2011. Why were "starvation diets" promoted for diabetes in the pre-insulin period? *Nutrition Journal* 10(23). doi: [10.1186/1475-2891-10-23](https://doi.org/10.1186/1475-2891-10-23)

Meyts, P.D., 2014. Jean De Meyer [internet]. Diapedia1104703413 rev. no. 13. Available from: <http://dx.doi.org/10.14496/dia.1104703413.13>

Mikulic-Prtkovsek, M., Schmitzer, V., Slatnar, A., Stampar, F., Veberic, R., 2012. Composition of sugars, organic acids, and phenolics in 25 wild or cultivated berry species. *Journal of Food Science* 77 (10), C1064-C1070.

Mishra, M.R., Mishra, A., Pradhan, D.K., Panda, A.K., Behera, R.K., Jha, S., 2013. Antidiabetic and Antioxidant Activity of *Scoparia dulcis* Linn. *Indian Journal of Pharmaceutical Sciences* 75(5), 610–614.

Mishra, S.B., Verma, A., Mukerjee, A., Vijayakumar, M., 2011. Anti-hyperglycemic activity of leaves extract of *Hyptis suaveolens* L. Poit in streptozotocin induced diabetic rats. Asian Pacific Journal of Tropical Medicine 4(9), 689-93. doi: 10.1016/S1995-7645(11)60175-2.

Mohanty, S., Das, A.B., Ghosh, N., Panda, B.B., Smith, D.W., 2010. Genetic diversity of 28 wild species of fodder legume *Cassia* using RAPD, ISSR and SSR markers: a novel breeding strategy. Journal of Biotech Research 2, 44-55.

Mohd, H.K., Yadava, P.S., 2010. Antidiabetic plants used Thoubal district of Manipur, Northeast India. Indian Journal of Traditional Knowledge 9, 510-514.

Monesi, L., Baviera, M., Marzona, I., Avanzini, F., Monesi, G., Nobili, A., Tettamanti, M., Cortesi, L., Riva, E., Fortino, I., Bortolotti, A., Fontana, G., Merlino, L., Roncaglioni, M.C., 2012. Prevalence, incidence and mortality of diagnosed diabetes: evidence from an Italian population-based study. Diabetic Medicine 29(3), 385-92. doi: 10.1111/j.1464-5491.2011.03446.x.

Mooradian, A.D., 2009. Dyslipidemia in type 2 diabetes mellitus. Nature Clinical Practice Endocrinology and Metabolism 5, 150-159. <http://dx.doi.org/10.1038/ncpendmet1066>

Morales, M.A., Jabbagy, A.J., Tenenzi, H.P., 1975. Mutations affecting accumulation of glycogen. Neurospora Newsletter 20, 24-25.

Motyl, K., McCabe, L.R., 2009. Streptozotocin, Type I Diabetes Severity and Bone. Biological Procedures Online 11(1), 296-315. DOI: 10.1007/s12575-009-9000-5.

Mousunho, N.M., Tonder, V.J.J., Steenkamp, V., 2013. *In vitro* anti-diabetic activity of *Sclerocarya birrea* and *Ziziphus Mucronata*. Natural product Communications 8(9), 1279-1284.

Mueckler, M., Caruso, C., Baldwin, S.A, Panico, M., Blench, I., Morris, H.R., Allard, W.J., Lienhard, G.E., Lodish, H.F., 1985. Sequence and structure of a human glucose transporter. Science 229(4717), 941-945. DOI:10.1126/science.3839598.

Nagarani, G., Abirami, a., Siddhuraju, P., 2014. A comparative study on antioxidant potentials, inhibitory activities against key enzymes related to metabolic syndrome, and anti-inflammatory activity of leaf extract from different *Momordica*

species. Food Science and Human Wellness. 3(1), 36-46.
[doi:10.1016/j.fshw.2014.02.003](https://doi.org/10.1016/j.fshw.2014.02.003)

Naidu, K.C., 2003. Antidiabetic Plants in India and Herbal Based Antidiabetic. Research Regency publications 4-6

Nokoff, N., Rewers, M., 2013. Pathogenesis of type 1 diabetes: lessons from natural history studies of high-risk individuals. Annals of the New York academy of sciences 1281(2013), 1–15.

Nyenwea, E.A., Jerkinsb, T.W., Umpierrezc, G.E., Kitabchi, A.E., 2011. Management of type 2 diabetes: evolving strategies for the treatment of patients with type 2 diabetes. Metabolism 60(1), 1–23. [doi:10.1016/j.metabol.2010.09.010](https://doi.org/10.1016/j.metabol.2010.09.010).

O'Brien, B.A., Harmon, B.V., Cameron, D.P., Allan, D.J., 1996. Beta-cell apoptosis is responsible for the development of IDDM in the multiple low-dose streptozotocin model. Journal of Pathology 178, 176–81.

Okoli, C.O., Obidike, I.C., Ezike, A.C., Akah, P.A., Salawu, O.A., 2011. Studies on the possible mechanisms of antidiabetic activity of the extract of aerial parts of *Phyllanthus niruri*. Pharmaceutical Biology 49(3), 248-55
[10.3109/13880209.2010.501456](https://doi.org/10.3109/13880209.2010.501456).

Okwu, D.E., 2001. Evaluation of the chemical composition of indigenous spices and flavouring Agents. Global Journal of Pure and Applied Sciences 7(3), 455- 459.

Olarte, E.I., Herrera, A.A., Villasenor, I.M., Jacinto, S.D., 2010. Antioxidant Activity of a New Indole Alkaloid from *Cassia alata* L. Philippine Agricultural Scientist 93(3), 250-254.

Olefsky, J.M., Farquhar, J.W., Reaven, G.M., 1974. Reappraisal of the role of insulin in hypertriglyceridemia. American Journal of Medicine 57, 551-560.

Olofsson, C.S., Salehi, A., Holm, C., Rorsman, P., 2004. Palmitate increases L-type Ca²⁺ currents and the size of the readily releasable granule pool in mouse pancreatic beta-cells. Journal Physiology 557(3), 935–948

Olokoba, A.B., Obateru, O.A., Olokoba, L.B., 2012. Type 2 Diabetes Mellitus: A Review of Current Trends. Oman Medical Journal 27(4), 269-273, DOI 10.5001/omj.2012.68.

Olubomehin, O.O., Abo, K.A., Ajaiyeoba, A.O., 2013. Alpha- amylase inhibitory activity if two *Anthocleista* species and *in vivo* rat model anti-diabetic activities of *Anthocleista djalonensis* extracts and fractions. Journal of Ethnopharmacology 146(3), 811-814, [doi:10.1016/j.jep.2013.02.007](https://doi.org/10.1016/j.jep.2013.02.007).

Organisation for Economic Co-operation and Development (OECD), 2001. Guidance document on acute oral toxicity testing, OECD Environment, Health and Safety Publications, series on testing and assessment, Number 24.

Owolabi, M.A., Coker, H.A.B., Jaja, S.I., 2010. Bioactivity of the phytoconstituents of the leaves of *Persea Americana*. Journal of Medicinal Plants Research 4(12), 1130-1135. DOI: 10.5897/JMPR09.429

Oyaizu, M., 1986. Studies on product of browning reactions. Antioxidant activity of products of browning reaction prepared from glucose amine. Japanese Journal of Nutrition and Diabetes 44, 307-315.

Palanichamy, S., Nagarajan, S., Devasagayam, M., 1988. Effect of *Cassia alata* leaf extract on hyperglycemic rats. Journal of Ethnopharmacology 22, 81-90.

Palsamy, P., Subramanian, S., 2008. Resveratrol, a natural phytoalexin, normalizes hyperglycemia in streptozotocin-nicotinamide induced experimental diabetic rats. Biomedicine and Pharmacotherapy 62, 598-605. <http://dx.doi.org/10.1016/j.biopha.2008.06.037>

Panichayupakaranant, P., Kaewsuwan, S., 2004. Bioassay-guided isolation of the antioxidant constituent from *Cassia alata* L. leaves. Journal of Science and Technology 26(1), 103-107.

Panicker, G.K., Karnad, D.R., Salvi, V., Kothari, S., 2012. Cardiovascular risk of oral antidiabetic drugs: current evidence and regulatory requirements for new drugs. The Journal of the Association of physicians in India 60, 56-61.

Parasuraman, S., Raveendran, R., Kesavan, R., 2010. Blood sample collection in small laboratory animals. Journal of Pharmacology and Pharmacotherapeutics 1(2), 87-93. doi: [10.4103/0976-500X.72350](https://doi.org/10.4103/0976-500X.72350).

Patel, D.K., Prasad, S.K., Kumar, R., Hemalatha, S., 2012. An overview on antidiabetic medicinal plants having having insulin mimetic property. Asian Pacific Journal of Tropical Biomedicine 2, 320-330. doi: [10.1016/S2221-1691\(12\)60032-X](https://doi.org/10.1016/S2221-1691(12)60032-X)

Patil, R., 2011. Current status of Indian medicinal plants with antidiabetic potential: a Review. *Asian Pacific Journal of Tropical Biomedicine* S291-S298.

Pejin, B., Savic, A., Sokovic, M., Glamoclija, J., Ciric, A., Nikolic, M., Radotic, K., Mojovic, M., 2014. Further in vitro evaluation of antiradical and antimicrobial activities of phytol. *Natural Product Research: Formerly Natural Product Letters* 28(6), 372-376 DOI: 10.1080/14786419.2013.869692

Petchi, R.R., Parasuraman, S., Vijaya, C., 2013. Antidiabetic and antihyperlipidemic effects of an ethanolic extract of the whole plant of *Tridax procumbens* (Linn.) in streptozotocin-induced diabetic rats. *Journal of Basic and Clinical Pharmacy* 4(4), 88-92. doi: 10.4103/0976-0105.121655.

Pham-Huy, L.A., He, H., Pham-Huy, C., 2008. Free Radicals, Antioxidants in Disease and Health. *International journal of Biomedical science* 4(2), 89-96.

Phoboo, S., Pinto, M.S., Barbosa, A.C., Sarkar, D., Bhowmik, P.C., Jha, P.K., Shetty, K., 2013. Phenolic-linked biochemical rationale for the anti-diabetic properties of *Swertia chirayita* (Roxb. ex Flem.) Karst. *Phytotherapy Research* 27(2), 227-35.

Piluzza, G., Bullitta, S., 2011. Correlations between phenolic content and antioxidant properties in twenty-four plant species of traditional ethnoveterinary use in the Mediterranean area. *Pharmaceutical Biology* 49(3), 240-247. doi: 10.3109/13880209.2010.501083;

Pociot, F., McDermott, M.F., 2002. Genetics of type 1 diabetes mellitus. *Genes and Immunity* 3, 235–249.

Poitout, V., Olson, L., Robertson, R., 1996. Insulin secreting cell lines: classification, characteristics and potential applications. *Diabetes and Metabolism* 22, 7–14.

Poretzky, L., editor, 2010, *Principles of Diabetes Mellitus*, 2nd edition, Springer New York, Dordrecht Heidelberg, London. <http://dx.doi.org/10.1007/978-0-387-09841-8>

Prabhakar, P.K., Doble, M., 2008. Mechanism of Action of Medicinal Plants towards Diabetes Mellitus - A Review. *Recent Progress in Medicinal Plant* 22, 181-204.

Priyadarshini, S.D., Sujatha, V., 2011. Phytochemical investigation of *Cassia alata* linn. flowers through various *in vitro* antioxidant assays. International Journal of Pharmacy & Technology 3(4), 3521-3534.

Prodyut, M., Niroj, B., Sonjit, D., Mritunjay, K., Sudarshana, B., Kabita, M., 2013. Herbal medicines useful for the treatment of diabetes in North-East India: a review. International journal of pharmacy and Biological sciences 3, 575-589.

Pu, J., Peng, G., Li, L., Na, H., Liu, Y., Liu, P., 2011. Palmitic acid acutely stimulates glucose uptake via activation of Akt and ERK1/2 in skeletal muscle cells. Journal of Lipid Research 52(7), 1319-27. doi: 10.1194/jlr.M011254

Pulido, R., Bravo, L., Saura-Calixto, F., 2000. Antioxidant activity of dietary polyphenols as determined by a modified ferric reducing/antioxidant power assay. Journal of Agricultural Food and Chemistry 48, 3396-3402. <http://dx.doi.org/10.1021/jf9913458>

Raaman, N., 2006. Phytochemical Techniques. New India Publishing Agency, New Delhi.

Rackham, C.L., Chagastelles, P.C., Nardi, N.B., Hauge-Evans, A.C., Jones, P.M., King, A.J., 2011. Co-transplantation of mesenchymal stem cells maintains islet organisation and morphology in mice. Diabetologia 54, 1127-1135.

Ragasa, C.Y., Cabrera, E.C., Torres, O.B., Buluran, A.I., Espineli, D.L., Raga, D.D., Shen, C.C., 2015. Chemical constituents and bioactivities of *Glinus oppositifolius*. Pharmacognocny research 7(2), 138-147.

Ramachandran, S., Rajasekaran, A., Adhirajan, N., 2013. In vivo and in vitro antidiabetic activity of *Terminalia paniculata* Bark: As evaluation of Possible Phytoconstituents and Mechanisms for Blood Glucose Control in Diabetes. Pharmacology. <http://dx.doi.org/10.1155/2013/484675>

Ramakrishna,D., Vidyasagar, G., Kumar, P.K., Reddy, M., Atyam, V.S.S.S.G., 2011. Evaluation of Antidiabetic activity of *Triumfetta pilosa* Roth in Streptozotocin-induced Diabetic Rats. International Journal of Pharma Sciences and Research 2(3), 98-103.

Raman, V., La, S., Saradhi, P., Rao, N., Krishna, N.V., Sudhakar, M., Radhakrishnan, T.M., 2012. Antibacterial, Antioxidant activity and GC-MS analysis

of *Eupatorium odoratum*. Asian Journal of Pharmaceutical and Clinical Research 5(2), 99-106.

Rao, S., Suresh, C., 2015. Analysis of Genetic Differentiation of Few Edible Cassia Species Using RAPD Molecular Markers, International Journal of Pharmacy & Pharmaceutical Research 3(2), 58-65.

Reeves., Lynn, V., 2012. A diet enriched in stearic acid protects against the progression of type 2 diabetes in leptin receptor deficient mice (DB/DB). Thesis and Dissertations-Physiology. http://uknowledge.uky.edu/physiology_etds/3

Reinhold, J.G., 1953. In: Standard methods in clinical chemistry. Academic Press, New York, 88-90.

Reitman, S., Frankel, S., 1957. A colorimetric method for the determination of serum glutamic oxalacetic and glutamic pyruvic transaminases. American Journal of Clinical Pathology 28, 53-56.

Rhabasa-Lhoret, R., Chiasson, J.L., 2004. α -Glucosidase inhibitors, in International Textbook of Diabetes Mellitus. 3rd edition, John Wiley & Sons Ltd, Chichester, U.K., 1, 901-914.

Rice-Evans, C.A., Miller, N.J., Paganga, G., 1997. Antioxidant properties of phenolic compounds. Trends in plant science 2(4), 304-309. [http://dx.doi.org/10.1016/S1360-1385\(97\)01018-2](http://dx.doi.org/10.1016/S1360-1385(97)01018-2)

Rich, S.S., 2006. Genetics of Diabetes and Its Complications. Journal of the American Society of Nephrology 17, 353-360.

Richard, F.D., 2013. Understanding diabetes. A biochemical perspective. John Wiley and sons. Inc. DOI: 10.1002/9781118530665.

Roith, D.L., Zick, Y., 2001. Recent Advances in Our Understanding of Insulin Action and Insulin Resistance. Diabetes Care 24(3), 588-597. doi: 10.2337/diacare.24.3.588.

Rosen, P., Nawroth, P.P., King, G., Moller, W., Tritschler, H.J., Packer, L., 2001. The role of oxidative stress in the onset and progression of diabetes and its complications: A summary of a Congress Series sponsored by UNESCO MCBN, the American Diabetes Association and the German Diabetes Society. Diabetes Metabolism Research and Reviews 17(3), 189-912.

Rossini, A.A., Like, A.A., Chick, W.L., Appel, M.C., Cahill, G.F., 1977. Studies of streptozotocin-induced insulinitis and diabetes. *Proceedings of the National Academy of Sciences* 74(6), 2485–2489.

Rudic, R.D., McNamara, P., Curtis, A.M., Boston, R.C., Panda, S., Hogenesch, J.B., Fitzgerald, G.A., 2004. BMAL1 and CLOCK, two essential components of the circadian clock, are involved in glucose homeostasis. *PLoS Biology* 2(11), e377.

Ryan, M., McInerney, D., Owens, D., Collins, P., Johnson, A., Tomkin, G.H., 2000. Diabetes and the Mediterranean diet: a beneficial effect of oleic acid on insulin sensitivity, adipocyte glucose transport and endothelium-dependent vasoreactivity. *QJM: An International Journal of Medicine* 93(2), 85-91

Sachdewa, A., Raina, D., Srivastava, A.K., Khemani, L.D., 2001. Effect of *Aegle marmelos* and *Hibiscus rosa sinensis* leaf extract on glucose tolerance in glucose induced hyperglycemic rats (Charles foster). *Journal of environmental Biology/Academy of environmental Biology* 22(1), 53-57.

Sadeghi, Z., Valizadeh, J., Shermeh, O.A., Akaberi, M., 2015. Antioxidant activity and total phenolic content of *Boerhavia elegans* (choisy) grown in Baluchestan, Iran. *Avicenna Journal of Phytomedicine* 5(1), 1–9.

Salib, Y.J., Michael, H.N., Eskande, E.F., 2013. Anti-diabetic properties of flavonoid compounds isolated from *Hyphaene thebaica* epicarp on alloxan induced diabetic rats. *Pharmacognosy Research* 5(1), 22–29. doi: 10.4103/0974-8490.105644

Samad, N.B., Debnath, T., Ye, Hasnat, M.A., Lim, B.O., 2014. In vitro antioxidant and anti-inflammatory activities of Korean blueberry (*Vaccinium corymbosum* L.) extracts, *Asian Pacific Journal of Tropical Biomedicine* 4(10), 807–815. doi:10.12980/APJTB.4.2014C1008

Sanders, L.J., 2002. From Thebes to Toronto and 21st Century: An incredible journey. *Diabetes Spectrum* 15, 56-60.

Sanger, F., 1958. The chemistry of insulin. Frederick Sanger Nobel Lecture. Nobelprize.org. http://nobelprize.org/nobel_prizes/chemistry/laureates/1958/sanger-lecture.html.

Sanjoaquin, M.A., Appleby, P.N., Spencer, E.A., Key, T.J., 2004. Nutrition and lifestyle in relation to bowel movement frequency: a cross-sectional study of 20630 men and women in EPIC-Oxford. *Public Health Nutrition* 7(1), 77–83.

Santos, C.C.M.P., Salvadori, M.S., Mota, V.G., Costa, L.M., Almeida, D.A.A.C.D., Oliveira, G.A.L.D., Costa, J.P., Sousa, D.P.D., Freitas, R.M.D., Almeida, R.N.D., 2013. Antinociceptive and Antioxidant Activities of Phytol In Vivo and In Vitro Models. *Neuroscience Journal*. <http://dx.doi.org/10.1155/2013/949452>

Saravanamuttu, S., Sudarsanam, D., 2012. Antidiabetic plants and their active ingredients: a review. *International Journal of Pharmaceutical Sciences and Research* 3(10), 3639-3650.

Saravanan, S., Parimelazhagan, T., 2014. In vitro antioxidant, antimicrobial and anti-diabetic properties of polyphenols of *Passiflora ligularis* Juss. fruit pulp. *Food Science and Human Wellness* 3(2), 56–64.

Sarkar, B., Khodre, S., Patel, P., Mandaniya, M., 2014. HPLC analysis and antioxidant potential of plant extract of *Cassia alata*. *Asian Journal of Pharmaceutical Science & Technology* 4(1), 4-7.

Sasidharan, S., Chen, Y., Saravanan, D., Sundram, K.M., Latha, Y.L., 2011. Extraction, isolation and characterization of bioactive compounds from plants' extracts. *African Journal of Traditional Complementary and Alternative Medicines* 8(1), 1–10.

Sasipriya, G., Maria, C.L., Siddhuraju, P., 2014. Influence of pressure cooking on antioxidant activity of wild (*Ensete superbum*) and commercial banana (*Musa paradisiacal* var. Monthan) unripe fruit and flower. *Journal of Food Science and Technology* 51(10), 2517-2525. [10.1007/s13197-012-0791-z](https://doi.org/10.1007/s13197-012-0791-z).

Scheen, A.J., 2003. Pathophysiology of type 2 diabetes. *Acta Clinica Belgica: International Journal of Clinical and Laboratory Medicine* 58(6), 335-341.

Schimizu, M., Ito, T., Terashima, S., hayashi, T., Arisawa, M., Morita, N., Kurokawa, S., Ito, K., Hashimoto, Y., 1984. Inhibition of lens aldose reductase by flavonoids. *Phytochemistry* 23(9), 1885–1888.

Schmidt, A., Vogel, R.L., Witherup, K.M., Rutledge, S.J., Pitzenberger, S.M., Adam, M., Rodan, G.A., 1996. Identification of fatty acid methyl ester as naturally occurring transcriptional regulators of the members of the peroxisome proliferator-activated receptor family. *Lipids* 31(11), 1115-24.

Seino, S., Takahashi, H., Fujimoto, W., Shibasaki, T., 2009. Roles of cAMP signalling in insulin granule exocytosis. *Diabetes Obesity and Metabolism* 11(4), 180-8. doi: 10.1111/j.1463-1326.2009.01108.x

Selvamani, P., Latha, S., Elayaraja, K., Suresh Babu, P., Gupta, J.K., Pal, T.K., Ghosh, L., Sen, D.J., 2008. Antidiabetic Activity of the Ethanol Extract of *Capparis sepiaria* L Leaves. *Indian Journal of Pharmaceutical Sciences* 70(3), 378–380. doi: 10.4103/0250-474X.43008.

Semagn, K., Bjornstad, A., Ndjiondjop, M.N., 2006. An overview of molecular marker methods for plants. *African Journal of Biotechnology* 5 (25), 2540-2568.

Sener, A., Malaisse-Lagae, F., Malaisse, W.J., 1982. Noncarbohydrate nutrients protect against alloxan-induced inhibition of insulin release. *Endocrinology* 110(6), 2210-2212. DOI: 10.1210/endo-110-6-2210

Shad, A.A., Ahmad, S., Ullah, R., AbdEl-Salam, N.M., Fouad, H., Rehman, N.U., Hussain, H., Saeed, W., 2014. Phytochemical and Biological Activities of Four Wild Medicinal Plants. *The Scientific World Journal*. <http://dx.doi.org/10.1155/2014/857363>.

Shalaby, M.A., Hammouda, A.A., 2013. Antiobesity, antioxidant and antidiabetic activities of red Ginseng plant extract in obese diabetic rats. *Journal of Ethnopharmacology* 2(3), 165-172. [10.5455/jice.20130910051230](https://doi.org/10.5455/jice.20130910051230).

Shalaby, N.M., Abd-Alla, H.I., Aly, H.F., Albalawy, M.A., Shaker, K.H., Bouajila, J., 2014. Preliminary *in vitro* and *in vivo* evaluation of antidiabetic activity of *Ducrosia anethifolia* Boiss. and its linear furanocoumarins. *Biomed Research International*. doi: 10.1155/2014/480545.

Sharma, U., Sahu, R.K., Roy, A., Golwala, D.K., Young, J., 2010. In vivo Antidiabetic and Antioxidant Potential of *Stephania hernandifolia* in Streptozotocin-Induced-Diabetic Rats. *Journal of Young Pharmacists* 2(3), 255–260. doi: 10.4103/0975-1483.66803.

Shaw, J.E., Sicree, R.A., Zimmet, P.Z., 2010. Global estimates of the prevalence of diabetes for 2010 and 2030. *Diabetes Research and Clinical Practice* 87(1), 4-14. doi: 10.1016/j.diabres.2009.10.007.

Shekelle, P.G., Hardy, M., Morton, S.C., Coulter, I., Venuturupalli, S., Favreau, J., Hilton, L.K., 2005. Are Ayurvedic herbs for diabetes effective? Limited evidence

shows that some herbs and formula have glucose-lowering effects, and deserve further study. *The Journal of Family Practice* 54(10), 876-886.

Sheshala, R., Peh, K.K., Darwis, Y., 2009. Preparation, characterization, and *in vivo* evaluation of insulin-loaded PLA-PEG microspheres for controlled parenteral drug delivery. *Drug Development and Industrial Pharmacy* 35, 1364-1374.

Shrayyef, M.Z., Gerich, J.E., 2010. Normal glucose homeostasis, in *Principles of Diabetes Mellitus*, by Leonid Poretsky, 2nd edition, Springer publications.

Singh, D., Mishra, M., Gupta, M., Singh, P., Gupta, A., Nema, R., 2012. Nitric Oxide radical scavenging assay of bioactive compounds present in methanol Extract of *Centella asiatica*. *International Journal of Pharmacy and Pharmaceutical Science Research* 2(3), 42-44.

Singh, K., Bhavna, V., 2013. Role of ayurvedic herbs on madhumeha-diabetes mellitus. *International Journal of Ayurvedic and Herbal Medicine* 3(2), 1136-1144.

Singh, S., Sahoo, S., Dash, S., Nayak, S., 2014. Association of growth and yield parameters with bioactive phytoconstituents in selection of promising turmeric genotypes. *Industrial Crops and Products* 62, 373-379. doi:10.1016/j.indcrop.2014.09.001;

Singh, T., Sinha, N., Singh, A., 2013. Biochemical and histopathological effects on liver due to acute oral toxicity of aqueous leaf extract of *Eclipta alba* on female Swiss albino mice, *Indian Journal of Pharmacology* 45(1), 61–65. doi: 10.4103/0253-7613.106437

Skelin, M., Rupnik, M., Cencic, A., 2010. Pancreatic Beta Cell Lines and their Applications in Diabetes Mellitus Research. *Altex* 27(2), 105-113.

Slinkard, K., Singleton, V.L., 1977. Total phenol analysis: automation and comparison with manual methods. *American Journal of Enology and Viticulture* 28, 49-55.

Smirin, P., Taler, D., Abitbol, G., Brutman-Barazani, T., Kerem, Z., Sampson, SR., Rosenzweig, T., 2010. *Sarcopoterium spinosum* extract as an antidiabetic agent: *in vitro* and *in vivo* study. *Journal of Ethnopharmacology* 129(1), 10-17. doi: 10.1016/j.jep.2010.02.021.

Smith, R.M., 2003. Before the injection—modern methods of sample preparation for separation techniques. *Journal of Chromatography* 1000(1–2), 3–27.

Soumyanath, A., 2006. Traditional Medicines for Modern Times: Antidiabetic Plants. CRC press Taylor and Francis Group.

Soumyanath, A., Srijayanta, S., 2005. In Vitro Models for Assessing Antidiabetic Activity, chapter 4, in Traditional Medicines for Modern Times: Antidiabetic Plants, CRC press, Taylor and Francis group 6, 99-101. DOI: 10.1201/9781420019001.ch4.

Stankovic, M.S., 2011. Total phenolic content, flavonoid concentration and antioxidant activity of *Marrubium peregrinum* L. extracts. Kragujevac Journal of Science 33, 63-72.

Starmans, D.A.J., Nijhuis, H.H., 1996. Extraction of secondary metabolites from plant material: a review. Trends in Food Science and Technology 7, 191–197.

Subash-Babu, P., Ignacimuthu, S., Agastian, P., 2008. Insulin secretagogue effect of *Ichnocarpus frutescence* leaf extract in experimental diabetes: a dose-dependent study. Chemico-Biological Interactions 172(2), 159-71.

doi: 10.1016/j.cbi.2007.12.004.

Sudha, P., Smita, S.Z., Bhargava, S.B., Kumar, R.A., 2011. Potent α -amylase inhibitory activity of Indian Ayurvedic medicinal plants. BMC Complementary and Alternative Medicine 11(5). doi:10.1186/1472-6882-11-5.

Sudhakar, S., Singh, R.P., 2008. In Vitro Methods of Assay of Antioxidants: An Overview. Food Reviews International 24, 392-415.

Sultana, B., Anwar, F., Ashraf, M., 2009. Effect of Extraction Solvent/Technique on the Antioxidant Activity of Selected Medicinal Plant Extracts. Molecules 14(6), 2167-2180. <http://dx.doi.org/10.3390/molecules14062167>

Suthar, M., Rathore, G.S., Pareek, A., 2009. Antioxidant and Antidiabetic Activity of *Helicteres isora* (L.) Fruits. Indian Journal of Pharmaceutical Sciences 71(6), 695–699. doi: [10.4103/0250-474X.59557](https://doi.org/10.4103/0250-474X.59557)

Swoap, S.J., Gutilla, M.J., Liles, L.C., Smith, R.O., Weinshenker, D., 2006. The full expression of fasting-induced torpor requires beta 3-adrenergic receptor signaling. Journal of Neuroscience 26, 241–245.

Szkudelski, T., 2001. The Mechanism of Alloxan and Streptozotocin Action in B Cells of the Rat Pancreas. Physiological Research 50, 536-546.

Tamiru, W., Engidawork, E., Asres, K., 2012. Evaluation of the effects of 80% methanolic leaf extract of *Caylusea abyssinica* (fresen.) fisch. & Mey. on glucose handling in normal, glucose loaded and diabetic rodents. BMC Complementary and Alternative Medicine 12(151), 1-7. <http://www.biomedcentral.com/1472-6882/12/151>.

Tan, K.T., Cheah, J.S., 1990. Pathogenesis of type 1 and type 2 diabetes mellitus. Annals, Academy of Medicine 19(4), 506-511.

Tatar, M., Qujeq, D., Feizi, F., Parsian, H., Faraji, A.S., Halalkhor, S., Abassi, R., Abedian, Z., Pourbagher, R., Mir, S.M.A., Mir, H., Sevfizadeh, N., 2012. Effects of *Teucrium Polium* Aerial Parts extract on oral glucose tolerance tests and pancreas histopathology in Streptozocin-induced diabetic rats. International Journal of Molecular and Cellular Medicine 1(1), 44-49.

Tattersall, R.B., 2010. The History of Diabetes Mellitus in Textbook of Diabetes. 4th edition, Blackwell Publishing.

Terpinc, P., Ceh, B., Ulrih, N.P., Abramovic, H., 2012. Studies of the correlation between antioxidant properties and the total phenolic content of different oil cake extracts. Industrial Crops and Products 39, 210– 217. [doi:10.1016/j.indcrop.2012.02.023](https://doi.org/10.1016/j.indcrop.2012.02.023)

Teugwa, C.M., Mejiato, P.C., Zofou, D., Tchinda, B.T., Boyom, F.F., 2013. Antioxidant and antidiabetic profiles of two African medicinal plants: *Picralima nitida* (Apocynaceae) and *Sonchus oleraceus* (Asteraceae). BMC Complementary and Alternative Medicine 13(175). <http://www.biomedcentral.com/1472-6882/13/175>.

Tiong, S.H., Looi, C.Y., Hazni, H., Arya, A., Paydar, m., Wong, W.F., Cheah, S.C., Mustafa, M.R., Awang, K., 2013. Antidiabetic and antioxidant properties of alkaloids from *Catharanthus roseus* (L.) G. Molecules 18, 9770-9784. [doi:10.3390/molecules18089770](https://doi.org/10.3390/molecules18089770).

Tomita, T., M.D., Paul E Lacy, M.D., Franz M Matschinsky, M.D. and Michael L McDaniel. 1974. Effect of Alloxan on Insulin Secretion in Isolated Rat Islets Perfused *in vitro*. Diabetes 23(6), 517-524. [doi: 10.2337/diab.23.6.517](https://doi.org/10.2337/diab.23.6.517)

Tracy, J.A., Dyck, P.J.B., 2008. The Spectrum of Diabetic Neuropathies. *Physical Medicine and Rehabilitation Clinics of North America* 19(1). doi: [10.1016/j.pmr.2007.10.010](https://doi.org/10.1016/j.pmr.2007.10.010).

Trease, G.E., Evans, W.C., 1996. *Pharmacognosy*, 4th edition, WB Saunders, USA. 820-835.

Tripathi, N., Saini, N., Tiwari, S., 2013. Morphological and Molecular Characterization of Endangered Medicinal Plant Species *Coleus forskohlii* Collected from Central India. *Journal of Crop Science and Biotechnology* 16(4), 253-261. DOI No. 10.1007/s12892-013-0083-9.

Tripathi, V., Goswami, S., 2011. Generic relationship among *Cassia* L., *Senna* Mill. and *Chamaecrista Moench* using RAPD markers. *International Journal of Biodiversity and Conservation* 3(3), 92-100.

Tripathi, V., Verma, J., 2014. Different models used to induce diabetes: a comprehensive review. *International Journal of Pharmacy and Pharmaceutical Sciences* 6(6), 29-32.

Tripathy, B.B., Chandalia, H.B., Das, A.K., Rao, P.V., Mohan, M.V., 2012. *Textbook of Diabetes mellitus*. 2nd edition, 1, 8-9.

Tsai, H.J., Sun, G., Weeks, D.E., Kaushal, R., Wolujewicz, M., McGarvey, S.T., Tufa, J., Viali, S., Deka, R., 2001. Type 2 Diabetes and Three Calpain-10 Gene Polymorphisms in Samoans: No Evidence of Association. *American Journal of Human Genetics* 69(6), 1236–1244. doi: [10.1086/324646](https://doi.org/10.1086/324646).

Turner, N., Hariharan, K., TidAng, J., Frangioudakis, G., Beale, S.M., Wright, L.E., Zeng, X.Y., Leslie, S.J., Li, J.Y., Kraegen, E.W., Cooney, G.J., Ye, J.M., 2009. Enhancement of Muscle Mitochondrial Oxidative Capacity and Alterations in Insulin Action Are Lipid Species Dependent Potent Tissue-Specific Effects of Medium-Chain Fatty Acids. *Diabetes* 58(11), 2547–2554

Ulleich, A., Shine, J., Chirgwin, J., Pictet, R., Tischer, E., Rutter, W.J., 1977. Rat insulin genes: construction of plasmids containing the coding sequences. *Science* 196(4296), 1313-1319. DOI: [10.1126/science.325648](https://doi.org/10.1126/science.325648).

Ullrich, A., Bell, J.R., Chen, E.Y., Herrera, R., Petruzzelli, L.M., Dull, T.J., Gray, A., Coussens, L., Liao, Y.C., Tsubokawa, M., Mason, A., Seeburg, H., Grunfeld, C., Rosen, O.M., Ramachandran, J., 1985. Human insulin receptor and its relationship to

the tyrosine kinase family of oncogenes. Nature 313, 756-761. doi:10.1038/313756a0.

Vannaphan, S., Walters, N., Saengnedasawang, T., Tangpukdee, N., Kham-In, P., Klubprasit, M., Wilairatana, P., Looareesuwan, S., 2010. Factors associated with acute renal failure in severe falciparum [corrected] malaria patients. Southeast Asian Journal of Tropical Medicine Public Health 41(5), 1042-1047.

Varghese, G.K., Bose, L.V., Habtemariam, S., 2013. Antidiabetic components of *Cassia alata* leaves: identification through α -glucosidase inhibition studies. Pharmaceutical biology 51(3), 345-349. doi: 10.3109/13880209.2012.729066.

Vassiliou, E.K., Gonzalez, A., Garcia, C., Tadros, J.H., Chakraborty, G., Toney, J.H., 2009. Oleic acid and peanut oil high in oleic acid reverse the inhibitory effect of insulin production of the inflammatory cytokine TNF- α both in vitro and in vivo system. Lipids in Health Disease 8(25). doi: 10.1186/1476-511X-8-25

Vianna, R., Brault, A., Martineau, L.C., Couture, R., Arnason, J.T., Haddad, P.S., 2011. In Vivo Anti-Diabetic Activity of the Ethanolic Crude Extract of *Sorbus decora* C.K. Schneid (Rosacea): A Medicinal Plant Used by Canadian James Bay Cree Nations to Treat Symptoms Related to Diabetes. Evidence-Based Complementary and Alternative Medicine <http://dx.doi.org/10.1093/ecam/nep158>.

Villasenor, I.M., Canlas, A.P., Pascua, M.P., Sabando, M.N., Soliven, L.A., 2002. Bioactivity studies on *Cassia alata* Linn. leaf extracts. Phytotherapy Research 16(S1), 93-96.

Waes, L.V., Lieber, C.S., 1977. Glutamate dehydrogenase: a reliable marker of liver cell necrosis in the alcoholic. British Medical Journal 2, 1508-1510

Wan, L.S., Chen, C.P., Xiao, Z.Q., Wang, Y.L., Min, Q.X., Yue, Y., Chen, J., 2013. *In vitro* and *in vivo* anti-diabetic activity of *Swertia Kouitchensis* extract. Journal of Ethnopharmacology 147, 622-630.

Wang, Z., Liang, C., Li, G., Yu, C., Yin, M., 2007. Stearic acid protects primary cultured cortical neurons against oxidative stress. Acta Pharmacologica Sinica 28(3), 315-326.

Warnotte, C., Gilon, P., Nenquin, M., Henquin, J.C., 1994. Mechanisms of the Stimulation of Insulin Release by Saturated Fatty Acids, A Study of Palmitate Effects in Mouse β -Cells. Diabetes 43, 703-711.

Wick, M.M., Rossini, A., Glynn, D., 1977. Reduction of streptozotocin toxicity by 3-O-methyl-D-glucose with enhancement of antitumor activity in murine L1210 leukemia, *Cancer Research* 37(11), 3901-3903.

Wieland, T., Bodanszky, M., 1991. *The world of peptides: A brief history of peptide chemistry*. 1st edition, Springer-Verlag Berlin Heidelberg, DOI: 10.1007/978-3-642-75850-8

William, E.C., 2000. Importance of n-3 fatty acids in health and disease. *The American Journal of Clinical Nutrition* 71, 171S–175S.

Wood, C., Lawrence, M.J., 1991. Models for intestinal drug absorption. *Journal of BioPharma Scientific* 2, 147–172.

Yadav, M., chatterji, S., Gupta, S.K., Watal, G., 2014. Preliminary phytochemical screening of six medicinal plants used in traditional medicine. *International Journal of Pharmacy and Pharmaceutical Sciences* 6(5), 539-542.

Yokoyama, W.H., 2004. Plasma LDL cholesterol lowering by plant phytosterols in a hamster model. *Trends in Food Science and Technology* 15(11), 528-531. DOI: DOI:10.1016/J.TIFS.2004.03.006.

Zajac, J., Shrestha, A., Patel, P., Poretsky, L., 2010. *Principles of Diabetes Mellitus*. Chapter 1. The Main Events in the History of Diabetes Mellitus. C. Springer Science+Business Media, LLC. DOI 10.1007/978-0-387-09841-8_1.

Zakłós-Szyda, M., Majewska, I., Redzyna, M., Koziółkiewicz, M., 2015. Antidiabetic Effect of Polyphenolic Extracts from Selected Edible Plants as α -Amylase, α -Glucosidase and PTP1B Inhibitors, and β Pancreatic Cells Cytoprotective Agents - a Comparative Study. *Current Topics in Medicinal Chemistry* 15(25), 2431-2444.

Zhuo, F., Gilbert, E.R., Liu, D., 2013. Regulation of Insulin Synthesis and Secretion and Pancreatic Beta-Cell Dysfunction in Diabetes. *Current Diabetes Review* 9(1), 25–53

Ziegenhals, K., Hubschmann, H.J., Speer, K., Jira, W., 2008. Fast-GC/HRMS to quantify the EU priority PAH. *Journal of Separation Science* 31, 1779-1786

Zimmerman, R., 2010. *Microvascular Complications of Diabetes*. *Current Clinical Medicine*, by Cleveland clinic 355-357.