IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, January 2024

Medicnal Properties of Azadirachta Indica

Miss. Gayatri Appasaheb Bhale, Miss Shital Khandagale, Dr. Gajanan Sanap
Department of Pharmacognocy
L. B. Y. P. College of Pharmacy, Pathri Phulambri, Maharashtra, India

Abstract: *Neem oil (Azadirachta Indica A. Juss.) was tested for its antifungal properties against Drechsleraoryzae and Fusariumoxysporum and tenuis, and the results revealed that the active antifungal fraction is a combination of tetranortriterpenoids. [1Bandyopadhyay et al., Life Sciences, 71, 2845-2865, 2002] We have previously demonstrated that Neem (Azadirachtaindica) bark aqueous extract has effective antisecretory and antiulcer properties in animal models and has no significant side effect. Examining if neem bark extract had comparable antisecretory and antiulcer effects in human participants was the goal of the current study. [2] The antioxidant activity, total phenolic (TP), and total flavonoid (TF) contents of bark extracts from four different trees (Azadirachtaindica, Terminaliaarjuna, Acacia nilotica, and Eugenia jambolana Lam.) were assessed. The solvents used were 80% methanol, 80% ethanol, and 80% acetone (solvent:water, 80:20 v/v). By assessing reducing power, inhibiting peroxidation using the linoleic acid method, and DPPH scavenging activity, antioxidant activity (AA) was measured. Different bark extracts' TP, TF, suppression of linoleic acid oxidation, and DPPH• scavenging activity varied significantly (P 0.05). However, a slight difference in decreasing power was seen.[3].*

Keywords: Azadirachta Indica

REFERENCES

[1]. Govindachari T. R., Suresh G., Gopalakrishnan G., Banumathy B., Masilamani S. Identification of antifungal compounds from the seed oil of *Azadirachtaindica* . *Phytoparasitica.* 1998;26(2):109–116. doi: 10.1007/bf02980677. [CrossRef] [Google Scholar]

[2]. Bandyopadhyay U., Biswas K., Sengupta A., et al. Clinical studies on the effect of Neem (*Azadirachtaindica*) bark extract on gastric secretion and gastroduodenal ulcer. *Life Sciences.* 2004;75(24):2867–2878. doi: 10.1016/j.lfs.2004.04.050. [PubMed] [CrossRef] [Google Scholar]

[3]. Sultana B., Anwar F., Przybylski R. Antioxidant activity of phenolic components present in barks of *Azadirachtaindica*, *Terminaliaarjuna*, *Acacia nilotica*, and *Eugenia jambolana* Lam. trees. *Food Chemistry.* 2007;104(3):1106–1114. doi: 10.1016/j.foodchem.2007.01.019. [CrossRef] [Google Scholar]

[4]. Sarmiento W. C., Maramba C. C., Gonzales M. L. M. An in vitro study on the antibacterial effect of neem (*Azadirachtaindica*) leaf extracts on methicillin-sensitive and methicillin-resistant *Staphylococcus aureus* .*PIDSP Journal.* 2011;12(1):40–45. [Google Scholar]

[5]. Hossain M. A., Al-Toubi W. A. S., Weli A. M., Al-Riyami Q. A., Al-Sabahi J. N. Identification and characterization of chemical compounds in different crude extracts from leaves of Omani neem. *Journal of Taibah University for Science.* 2013;7(4):181–188. doi: 10.1016/j.jtusci.2013.05.003. [CrossRef] [Google Scholar]

[6]. Ghimeray A. K., Jin C. W., Ghimire B. K., Cho D. H. Antioxidant activity and quantitative estimation of azadirachtin and nimbin in *Azadirachtaindica* A. Juss grown in foothills of Nepal. *African Journal of Biotechnology.* 2009;8(13):3084–3091. [Google Scholar]

[7]. Efferth T., Koch E. Complex interactions between Phytochemicals. The Multi-Target Therapeutic concept of Phytotherapy. *Current Drug Targets.* 2011;12(1):122–132. doi: 10.2174/138945011793591626. [PubMed] [CrossRef] [Google Scholar]

[8]. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4441161/

[9]. Sharma P, Tomar L, Bachwani M, Bansal V. Review on Neem (*Azadirechtaindica*): Thousand Problem One Solution. *Int Res J Pharm.* 2011;2:97–102. [Google Scholar

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, January 2024

[10]. Kapoor S, Saraf S. Assessment of viscoelasticity and hydration effect of herbal moisturizers using bioengineering techniques. *Pharmacogn Mag.* 2010;6:298–304. [PMC free article] [PubMed] [Google Scholar]

[11]. Subapriya R, Nagini S. Medicinal properties of neem leaves: A Review. *Curr Med Chem Anticancer Agents.* 2005;5:149–6. [PubMed] [Google Scholar]

[12]. Ghonmode W. N., Balsaraf O. D., Tambe V. H., Saujanya K. P., Patil A. K., Kakde D. D. Comparison of the antibacterial efficiency of neem leaf extracts, grape seed extracts and 3% sodium hypochlorite against *E. feacalis*—an in vitro study. *Journal of International Oral Health.* 2013;5(6):61–66. [PMC free article] [PubMed] [Google Scholar]

[13]. MahfuzulHoque M. D., Bari M. L., Inatsu Y., Juneja V. K., Kawamoto S. Antibacterial activity of guava (*Psidiumguajava* L.) and neem (*Azadirachtaindica* A. Juss.) extracts against foodborne pathogens and spoilage bacteria. *Foodborne Pathogens and Disease.* 2007;4(4):481–488. doi: 10.1089/fpd.2007.0040. [PubMed] [CrossRef] [Google Scholar]

[14]. Yerima M. B., Jodi S. M., Oyinbo K., Maishanu H. M., Farouq A. A., Junaidu A. U. Effect of neem extracts (*Azadirachtaindica*) on bacteria isolated from adult mouth. *Journal of Basic and Applied Sciences.* 2012;20:64–67. [Google Scholar]

[15]. Tiwari V., Darmani N. A., Yue B. Y. J. T., Shukla D. In vitro antiviral activity of neem (*Azardirachtaindica* L.) bark extract against herpes simplex virus type-1 infection. *Phytotherapy Research.* 2010;24(8):1132–1140. doi: 10.1002/ptr.3085. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

[16]. Badam L., Joshi S. P., Bedekar S. S. 'In vitro' antiviral activity of neem (*Azadirachtaindica*. A. Juss) leaf extract against group B coxsackieviruses. *Journal of Communicable Diseases.* 1999;31(2):79–90. [PubMed] [Google Scholar]

[17]. Mondali N. K., Mojumdar A., Chatterje S. K., Banerjee A., Datta J. K., Gupta S. Antifungal activities and chemical characterization of Neem leaf extracts on the growth of some selected fungal species in vitro culture medium. *Journal of Applied Sciences and Environmental Management.* 2009;13(1):49–53. [Google Scholar]

[18]. Anjali K., Ritesh K., Sudarshan M., Jaipal S. C., Kumar S. Antifungal efficacy of aqueous extracts of neem cake, karanj cake and vermicompost against some phytopathogenic fungi. *The Bioscan.* 2013;8:671–674. [Google Scholar]

[19]. Shrivastava D. K., Swarnkar K. Antifungal activity of leaf extract of neem (*Azadirachtaindica* Linn) *International Journal of Current Microbiology and Applied Sciences.* 2014;3(5):305–308. [Google Scholar]

[20]. Natarajan V., Venugopal P. V., Menon T. Effect of Azadirachtaindica (Neem) on the growth pattern of dermatophytes. *Indian Journal of Medical Microbiology.* 2003;21(2):98–101. [PubMed] [Google Scholar]

[21]. Amadioha A. C., Obi V. I. Fungitoxic activity of extracts from *Azadirachtaindica* and *Xylopiaaethiopica* on *Colletotrichumlindemuthianum* in cowpea. *Journal of Herbs, Spices and Medicinal Plants.* 1998;6(2):33–40. doi: 10.1300/j044v06n02_04. [CrossRef] [Google Scholar]

[22]. Jabeen K., Hanif S., Naz S., Iqbal S. Antifungal activity of *Azadirachtaindica* against *Alternariasolani* . *Journal of Life Sciences and Technologies.* 2013;1(1):89–93. doi: 10.12720/jolst.1.1.89-93. [CrossRef] [Google Scholar]

[23]. Akin-Osanaiya B. C., Nok A. J., Ibrahim S., et al. Antimalarial effect of Neem leaf and Neem stem bark extracts on plasmodium berghei infected in the pathology and treatment of malaria. *International Journal of Research in Biochemistry and Biophysics.* 2013;3(1):7–14. [Google Scholar]

[24]. Mulla M. S., Su T. Activity and biological effects of neem products against arthropods of medical and veterinary importance. *Journal of the American Mosquito Control Association.* 1999;15(2):133–152. [PubMed] [Google Scholar]

[25]. Nathan S. S., Kalaivani K., Murugan K. Effects of neemlimonoids on the malaria vector *Anopheles stephensi* Liston (Diptera: Culicidae) *ActaTropica.* 2005;96(1):47–55. doi: 10.1016/j.actatropica.2005.07.002. [PubMed] [CrossRef] [Google Scholar]

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, January 2024

[26]. Udeinya J. I., Shu E. N., Quakyi I., Ajayi F. O. An antimalarial neem leaf extract has both schizonticidal and gametocytocidal activities. *American Journal of Therapeutics.* 2008;15(2):108–110. doi: 10.1097/mjt.0b013e31804c6d1d. [PubMed] [CrossRef] [Google Scholar]

[27]. Chatterjee A., Saluja M., Singh N., Kandwal A. To evaluate the antigingivitis and antipalque effect of an *Azadirachtaindica* (neem) mouthrinse on plaque induced gingivitis: a double-blind, randomized, controlled trial. *Journal of Indian Society of Periodontology.* 2011;15(4):398–401. doi: 10.4103/0972-124x.92578. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

[28]. Lekshmi N. C. J. P., Sowmia N., Viveka S., Brindha Jr., Jeeva S. The inhibiting effect of *Azadirachtaindica* against dental pathogens. *Asian Journal of Plant Science and Research.* 2012;2(1):6–10. [Google Scholar]

[29]. Chava V. R., Manjunath S. M., Rajanikanth A. V., Sridevi N. The efficacy of neem extract on four microorganisms responsible for causing dental caries viz*Streptococcus mutans, Streptococcus salivarius, Streptococcus mitis* and *Streptococcus sanguis*: an *in vitro* study. *Journal of Contemporary Dental Practice.* 2012;13(6):769–772. doi: 10.5005/jp-journals-10024-122. [PubMed] [CrossRef] [Google Scholar]

[30]. Dhar R., Dawar H., Garg S., Basir S. F., Talwar G. P. Effect of volatiles from neem and other natural products on gonotrophic cycle and oviposition of *Anopheles stephensi* and *An. culicifacies* (Diptera: Culicidae) *Journal of Medical Entomology.* 1996;33(2):195–201. doi: 10.1093/jmedent/33.2.195. [PubMed] [CrossRef] [Google Scholar]

[31]. Abdel Moneim A. E., Othman M. S., Aref A. M. *Azadirachtaindica* attenuates cisplatin-induced nephrotoxicity and oxidative stress. *BioMed Research International.* 2014;2014:11. doi: 10.1155/2014/647131.647131 [PMC free article] [PubMed] [CrossRef] [Google Scholar]

[32]. Abdel Moneim A. E. *Azadirachtaindica* attenuates cisplatin-induced neurotoxicity in rats. *Indian Journal of Pharmacology.* 2014;46(3):316–321. doi: 10.4103/0253-7613.132182. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

[33]. Durrani F. R., Chand N., Jan M., Sultan A., Durrani Z., Akhtar S. Immunomodulatory and growth promoting effects of neem leaves infusion in broiler chicks. *Sarhad Journal of Agriculture.* 2008;24:655–659. [Google Scholar]

[34]. Sadekar R. D., Kolte A. Y., Barmase B. S., Desai V. F. Immunopotentiating effects of *Azadirachtaindica* (Neem) dry leaves powder in broilers, naturally infected with IBD virus. *Indian Journal of Experimental Biology.* 1998;36(11):1151–1153. [PubMed] [Google Scholar]

[35]. Sinniah D., Baskaran G. Margosa oil poisoning as a cause of Reye's syndrome. *The Lancet.* 1981;317(8218):487–489. doi: 10.1016/s0140-6736(81)91861-4. [PubMed] [CrossRef] [Google Scholar]

[36]. Sundaravalli N., BhaskarRaju B., Krishnamoorthy K. A. Neem oil poisoning. *The Indian Journal of Pediatrics.* 1982;49(3):357–359. doi: 10.1007/bf02834422. [PubMed] [CrossRef] [Google Scholar]

[37]. Jaiswal A. K., Bhattacharya S. K., Acharya S. B. Anxiolytic activity of *Azadirachtaindica* leaf extract in rats. *Indian Journal of Experimental Biology.* 1994;32(7):489–491. [PubMed] [Google Scholar]

[38]. Raizada R. B., Srivastava M. K., Kaushal R. A., Singh R. P. Azadirachtin, a neembiopesticide: subchronic toxicity assessment in rats. *Food and Chemical Toxicology.* 2001;39(5):477–483. doi: 10.1016/s0278-6915(00)00153-8. [PubMed] [CrossRef] [Google Scholar]

[39]. Boadu K. O., Tulashie S. K., Anang M. A., Kpan J. D. Toxicological analysis of the effect of neem tree extract in an organism. *European Journal of Experimental Biology.* 2011;1:160–171. [Google Scholar]

[40]. Deng Y.-X., Cao M., Shi D.-X., et al. Toxicological evaluation of neem (*Azadirachtaindica*) oil: acute and subacute toxicity. *Environmental Toxicology and Pharmacology.* 2013;35(2):240–246. doi: 10.1016/j.etap.2012.12.015. [PubMed] [CrossRef] [Google Scholar]

[41]. Biu A. A., Yusufu S. D., Rabo J. S. Acute toxicity study on neem (*Azadirachtaindica*, Juss) leaf aqueous extract in chicken (*Gallus gallusdomesticus*) *African Scientist.* 2010;11(4):241–244. [Google Scholar]

[42]. . Biu A. A., Yusufu S. D., Rabo J. S. Acute toxicity study on neem (*Azadirachtaindica*, Juss) leaf aqueous extract in chicken (*Gallus gallusdomesticus*) *African Scientist.* 2010;11(4):241–244. [Google Scholar]

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, January 2024

[43]. Akin-Osanaiya B. C., Nok A. J., Ibrahim S., et al. Antimalarial effect of neem leaf and neem stem bark extracts on *Plasmodium berghei* infected in the pathology and treatment of malaria. *International Journal of Research in Biochemistry and Biophysics.* 2013;3(1):7–14. [Google Scholar]

[44]. Bakr S. A. Evaluation of acute toxicity of water extract of *Azadirachtaindica* leaves and seeds in rats. *Pakistan Journal of Biological Sciences.* 2013;16(14):697–700. doi: 10.3923/pjbs.2013.697.700. [PubMed] [CrossRef] [Google Scholar]

[45]. Khan M. F., Ahmed S. M. Toxicity of crude Neem leaf extract against housefly *Muscadomestica* L. Adults as compared With DDVP, Dichlorvos. *Turkish Journal of Zoology.* 2000;4:219–223. [Google Scholar]