

PAU D'ARCO EXTRACT



2 Fluid Ounces (60 ml)

Retail price: \$21.95

Scientists around the world have documented the active properties of pau d'arco and its chemicals including the widely studied chemicals, beta-lapachone and lapachol.* This huge rainforest canopy tree goes by several names including taheebo, lapacho, tahuari, and of course, pau d'arco. Raintree Nutrition's Pau d'arco Concentrated Extract uses new and proprietary extraction methods to concentrate and preserve the active ingredients found in this amazing rainforest tree. The main active chemicals in pau d'arco require heat and alcohol to extract them as they are not very water soluble. Raintree's extract is rich in active and beneficial phytochemicals which occur naturally in this plant because we employ the best methods required based upon this plant's individual phytochemistry—with heat and alcohol. The extraction methods utilized provides the equivalent of approximately 500 mgs of pau d'arco bark per milliliter of extract, resulting in a highly potent concentrated extract. For more complete information on this unique rainforest tree, please see the Raintree Nutrition internet website and the online [Tropical Plant Database](#).

Traditional Uses:* for *Candida*, yeast and other fungal infections (taken internally and used as a douche or topically); for leukemia and cancer; for colds, flu and other upper-respiratory bacterial and viral infections; for sexually transmitted diseases (syphilis, gonorrhea, etc.); for psoriasis and dermatitis

Ingredients: Pau d'arco bark (*Tabebuia impetiginosa*) extracted in distilled water and 40% ethanol.

Suggested Use: Take 60 drops (2 ml) 2 or more times daily.

Contraindications: Not to be used during pregnancy or while breast-feeding.

Drug Interactions: None reported.

Other Observations:

- Large single dosages of pau d'arco decoctions may cause gastrointestinal upset and/or nausea. Do not use in high doses unless under the advice of a qualified health practitioner; reduce dosage if nausea occurs.

Clinical Documentation and Research:* This Raintree product has not been the subject of any clinical research. Available third-party documentation and research on pau d'arco can be found at the Raintree website and [PubMed](#). A partial listing of published research on this plant is shown below:

Antimicrobial Actions (fungi, yeast, bacteria, and virus):

- Pereira, E. M., et al. "*Tabebuia avellanae* naphthoquinones: activity against methicillin-resistant staphylococcal strains, cytotoxic activity and in vivo dermal irritability analysis." *Ann. Clin. Microbiol. Antimicrob.* 2006 Mar; 5: 5.
- Park, B. S., et al. "Antibacterial activity of *Tabebuia impetiginosa* Martius ex DC (Taheebo) against *Helicobacter pylori*." *J. Ethnopharmacol.* 2006 Apr; 105(1-2): 255-62.
- Park, B. S., et al. "Selective growth-inhibiting effects of compounds identified in *Tabebuia impetiginosa* inner bark on human intestinal bacteria." *J. Agric. Food Chem.* 2005 Feb; 23;53(4): 1152-7.
- Park, B. S., et al. "Antibacterial activity of *Tabebuia impetiginosa* Martius ex DC (Taheebo) against *Helicobacter pylori*." *J. Ethnopharmacol.* 2005 Dec;
- Machado, T. B., et al. "In vitro activity of Brazilian medicinal plants, naturally occurring naphthoquinones and their analogues, against methicillin-resistant *Staphylococcus aureus*." *Int. J. Antimicrob. Agents.* 2003; 21(3): 279-84.
- Portillo, A., et al. "Antifungal activity of Paraguayan plants used in traditional medicine." *J. Ethnopharmacol.* 2001; 76(1): 93-8.
- Nagata, K., et al. "Antimicrobial activity of novel furanonaphthoquinone analogs." *Antimicrobial Agents Chemother.* 1998; 42(3): 700-2.
- Binutu, O. A., et al. "Antimicrobial potentials of some plant species of the *Bignoniaceae* family." *Afr. J. Med. Sci.* 1994; 23(3): 269-73.
- Giuraud, P., et al. "Comparison of antibacterial and antifungal activities of lapachol and b-lapachone." *Planta Med.* 1994; 60: 373-74.
- Li, C. J., et al. "Three inhibitors of type 1 human immunodeficiency virus long terminal repeat-directed gene expression and virus replication." *Proc. Nat'l. Acad. Sci. USA* 1993; 90(5): 1839-42.

- Anesini, C., et al. "Screening of plants used in Argentine folk medicine for antimicrobial activity." *J. Ethnopharmacol.* 1993; 39(2): 119–28.
- Lagrotta, M., et al. "Antiviral activity of lapachol." *Rev. Microbiol.* 1983; 14: 21–6.
- Gershon, H., et al. "Fungitoxicity of 1,4-naphthoquinones to *Candida albicans* and *Trichophyton menta* grophytes." *Can. J. Microbiol.* 1975; 21: 1317–21.
- Linhares, M. S., et al. "Estudo sobre o efeito de substancias antibioticas obtidas de *Streptomyces* e vegetais superiores sobre o herpesvirus hominis." *Revista Instituto Antibioticos, Recife* 1975; 15: 25–32.

Anticancerous & Antileukemic Actions:

- Larsson, D. E., et al. "Identification and evaluation of potential anti-cancer drugs on human neuroendocrine tumor cell lines." *Anticancer Res.* 2006 Nov-Dec; 26(6B): 4125-9.
- Bey, E. A., et al. "Mornings with Art, lessons learned: feedback regulation, restriction threshold biology, and redundancy govern molecular stress responses." *J. Cell Physiol.* 2006 Dec; 209(3): 604-10.
- Kung, H. N., et al. "Involvement of NO/cGMP signaling in the apoptotic and anti-angiogenic effects of beta-lapachone on endothelial cells in vitro." *J. Cell Physiol.* 2006 Dec 27;
- Bentle, M. S., et al. "Calcium-dependent modulation of poly(ADP-ribose) polymerase-1 alters cellular metabolism and DNA repair." *J. Biol. Chem.* 2006 Nov; 281(44): 33684-96.
- Sun, X., et al. "Selective induction of necrotic cell death in cancer cells by beta-lapachone through activation of DNA damage response pathway." *Cell Cycle.* 2006 Sep; 5(17): 2029-35.
- Woo, H. J., et al. "Beta-lapachone, a quinone isolated from *Tabebuia avellanadae*, induces apoptosis in HepG2 hepatoma cell line through induction of Bax and activation of caspase." *J. Med. Food.* 2006 Summer; 9(2):161-8.
- Suzuki, M., et al. "Synergistic effects of radiation and beta-lapachone in DU-145 human prostate cancer cells in vitro." *Radiat. Res.* 2006; 165(5): 525-31.
- Lee, J. I., et al. "Beta-lapachone induces growth inhibition and apoptosis in bladder cancer cells by modulation of Bcl-2 family and activation of caspases." *Exp. Oncol.* 2006 Mar; 28(1): 30-5.
- Lee, J. H., et al. "Down-regulation of cyclooxygenase-2 and telomerase activity by beta-lapachone in human prostate carcinoma cells." *Pharmacol. Res.* 2005; 51(6): 553-60.
- Reinicke, K. E., et al. "Development of beta-lapachone prodrugs for therapy against human cancer cells with elevated NAD(P)H:quinone oxidoreductase 1 levels." *Clin. Cancer Res.* 2005 Apr; 11(8): 3055-64.
- Woo, H. J., et al. "Growth inhibition of A549 human lung carcinoma cells by beta-lapachone through induction of apoptosis and inhibition of telomerase activity." *Int. J. Oncol.* 2005; 26(4): 1017-23.
- Park, H. J., et al. "Heat-induced up-regulation of NAD(P)H:quinone oxidoreductase potentiates anticancer effects of beta-lapachone." *Clin. Cancer Res.* 2005 Dec; 11(24 Pt 1): 8866-71.
- Balassiano, I. T., et al. "Demonstration of the lapachol as a potential drug for reducing cancer metastasis." *Oncol. Rep.* 2005; 13(2): 329-33.
- Ough, M., et al. "Efficacy of beta-lapachone in pancreatic cancer treatment: exploiting the novel, therapeutic target NQO1." *Cancer Biol. Ther.* 2005 Jan; 4(1): 95-102.
- Park, H. J., et al. "Susceptibility of cancer cells to beta-lapachone is enhanced by ionizing radiation." *Int. J. Radiat. Oncol. Biol. Phys.* 2005 Jan; 61(1): 212-9.
- Kumi-Diaka, J., et al. "Potential mechanism of phytochemical-induced apoptosis in human prostate adenocarcinoma cells: Therapeutic synergy in genistein and beta-lapachone combination treatment." *Cancer Cell Int.* 2004 Aug; 4(1): 5.
- Choi, B. T., et al. "beta-Lapachone-induced apoptosis is associated with activation of caspase-3 and inactivation of NF-kappaB in human colon cancer HCT-116 cells." *Anticancer Drugs.* 2003 Nov; 14(10): 845-50.
- Renou, S. G., et al. "Monoarylhyazones of alpha-lapachone: synthesis, chemical properties and antineoplastic activity." *Pharmazie.* 2003 Oct; 58(10): 690-5.
- Choi, Y. H., et al. "Suppression of human prostate cancer cell growth by beta-Lapachone via down-regulation of PRB phosphorylation and induction of Cdk Inhibitor p21(WAF1/CIP1)." *J. Biochem. Mol. Biol.* 2003 Mar; 36(2): 223-9.
- Colman de Saizarbitoria, T., et al. "Bioactive furonaphthoquinones from *Tabebuia barbata* (Bignoniaceae)." *Acta Cient. Venez.* 1997; 48(1): 42-6.
- Ueda, S., et al. "Production of anti-tumour-promoting furanonaphthoquinones in *Tabebuia avellanadae* cell cultures." *Phytochemistry.* 1994 May; 36(2): 323-5.
- Schuerch, A. R., et al. "B-Lapachone, an inhibitor of oncornavirus reverse transcriptase and eukarotic DNA polymerase-A. Inhibitory effect, thiol dependency and specificity." *Eur. J. Biochem.* 1978; 84: 197–205.
- Linardi, M. D. C., et al. "A lapachol derivative active against mouse lymphocyte leukemia P-388." *J. Med. Chem.* 1975; 18(11): 1159–62.
- Block, J. B., et al. "Early clinical studies with lapachol (NSC-11905)." *Cancer Chemother. Rep.* 1974; 4: 27–8.
- Santana, C. F., et al. "Preliminary observation with the use of lapachol in human patients bearing malignant neoplasms." *Revista do Instituto de Antibioticos* 1971; 20: 61–8.
- Rao, K. V., et al. "Recognition and evaluation of lapachol as an antitumor agent." *Canc. Res.* 1968; 28: 1952–54.

Anti-inflammatory & Pain-Relieving Actions:

- Awale, S., et al. "Nitric oxide (NO) production inhibitory constituents of *Tabebuia avellanadae* from Brazil." *Chem. Pharm.*

Bull. 2005; 53(6): 710-3.

Lee, J. H., et al. "Down-regulation of cyclooxygenase-2 and telomerase activity by beta-lapachone in human prostate carcinoma cells." *Pharmacol. Res.* 2005; 51(6): 553-60.

de Miranda, F. G., et al. "Antinociceptive and antiedematogenic properties and acute toxicity of *Tabebuia avellanedae* Lor. ex Griseb. inner bark aqueous extract." *BMC. Pharmacol.* 2001; 1(1): 6.

Oga, S., et al. "Toxicidade e atividade anti-inflamatória de *Tabebuia avellanedae* Lorentz ('Ipe Roxo')." *Rev. Fac. Farm. Bioquim.* 1969; 7: 4.

Antipsoriatic Actions:

Muller, K., et al. "Potential antipsoriatic agents: lapacho compounds as potent inhibitors of HaCaT cell growth." *J. Nat. Prod.* 1999; 62(8): 1134-36.

Antioxidant Actions:

Park, B. S., et al. "Antioxidant activity and characterization of volatile constituents of Taheebo (*Tabebuia impetiginosa* Martius ex DC)." *J. Agric. Food Chem.* 2003; 51(1): 295-300.

Cardiotonic Actions:

Son, D. J., et al. "Inhibitory effects of *Tabebuia impetiginosa* inner bark extract on platelet aggregation and vascular smooth muscle cell proliferation through suppressions of arachidonic acid liberation and ERK1/2 MAPK activation." *J. Ethnopharmacol.* 2006 Nov; 108(1): 148-51.

Anti-Parasitic & Anti-malarial Actions:

Ferreira, V. F., et al. "Trypanocidal agents with low cytotoxicity to mammalian cell line: a comparison of the theoretical and biological features of lapachone derivatives." *Bioorg. Med. Chem.* 2006 Aug; 14(16): 5459-66.

Silva, R. S., et al. "Synthesis of naphthofuranquinones with activity against *Trypanosoma cruzi*." *Eur. J. Med. Chem.* 2006 Apr; 41(4): 526-30.

Menna-Barreto, R. F., et al. "Effect of a beta-lapachone-derived naphthoimidazole on *Trypanosoma cruzi*: identification of target organelles." *J. Antimicrob. Chemother.* 2005 Dec; 56(6): 1034-41.

Perez-Sacau, E., et al. "Antiplasmodial activity of naphthoquinones related to lapachol and beta-lapachone." *Chem. Biodivers.* 2005; 2(2): 264-74.

Lima, N. M., et al. "Antileishmanial activity of lapachol analogues." *Mem. Inst. Oswaldo Cruz.* 2004 Nov; 99(7): 757-61.

de Andrade-Neto, V. F., et al. "Antimalarial activity of phenazines from lapachol, beta-lapachone and its derivatives against *Plasmodium falciparum* in vitro and *Plasmodium berghei* in vivo." *Bioorg. Med. Chem. Lett.* 2004 Mar; 14(5): 1145-9.

Pinto, C. N., et al. "Chemical reactivity studies with naphthoquinones from *Tabebuia* with anti-trypanosomal efficacy." *Arzneimittelforschung.* 2000; 50(12): 1120-8.

Austin, F. R. "*Schistosoma mansoni* chemoprophylaxis with dietary lapachol." *Am. J. Trop. Med. Hyg.* 1979; 23: 412-19.

Gilbert, B., et al. "Schistosomiasis. Protection against infection by terpenoids." *An. Acad. Brasil. Cienc.* 1970; 42 (Suppl): 397-400.

Antivenin Actions:

Nunez, V., et al. "Neutralization of the edema-forming, defibrinating and coagulant effects of *Bothrops asper* venom by extracts of plants used by healers in Colombia." *Braz. J. Med. Biol. Res.* 2004; 37(7): 969-77.

Otero, R., et al. "Snakebites and ethnobotany in the northwest region of Colombia. Part III: neutralization of the haemorrhagic effect of *Bothrops atrox* venom." *J. Ethnopharmacol.* 2000 Nov; 73(1-2): 233-41.

Otero, R., et al. "Snakebites and ethnobotany in the northwest region of Colombia: Part II: neutralization of lethal and enzymatic effects of *Bothrops atrox* venom." *J. Ethnopharmacol.* 2000 Aug; 71(3): 505-11.

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