

289. *RAUVOLFIA SERPENTINA* (L.) Benth. (APOCYNACEAE) — Rauwolfia, Chandra, Sarpaganda

Rauwolfia is cultivated for medicinal uses of the 30 alkaloids, especially reserpine, found in the root. Drug used mostly in treating high blood pressure, also for insomnia, hyperglycemia, hypochondria, mental disorders, and certain forms of insanity. Its great value lies in its not requiring to be administered in critical dosages, rare side effects (recently stated to be carcinogenic and teratogenic), nonhabit-forming, without withdrawal symptoms or contraindication. Also used for hypertension, neuropsychiatry, gynecology and geriatrics. Emboden notes that under the name "sarpaganda" it was used by holy men such as Mahatma Gandhi to promote states of meditation and introspection. In experimental animals reserpine is said to interrupt the vaginal cycle, inhibit ovulation, induce false pregnancy, inhibit androgenic secretions of the male gonads, and decrease hypertrophy of the testes. In laboratory rats, the bacteriostatic alkaloid lessens skin graft rejections.¹ Rescinnamine is second in importance as a hypotensive drug and deserpidine nearly as important as a hypotensive and sedative. Serpentinine is a weak hypotensive, sarpagine has only fleeting effects on blood pressure and pressure amines, ajmaline stimulates respiration and intestinal movement, rauwolfinine is hypertensive, while yohimbine is hypotensive, a cardiovascular depressant, and hypnotic.¹ According to Morton, ajmalinine is hypotensive, ajmalicine is a CNS-depressant, and chandrine is antiarrhythmic.¹⁷ There is such a great demand for the alkaloids and the raw drug that India is taking steps to increase production to 100 to 150 MT root per year. In 1973, circa 25 million prescriptions containing reserpine were sold in the U.S. (1.45% of all prescriptions and nearly six million (0.38% of total) containing *Rauwolfia* extracts).

Hindus uses the root for fever, dysentery, and other painful intestinal ailments, e.g., cholera, gastritis, etc., and for snakebite. In Ayurvedic medicine it was used for worms, ulcers, scorpion sting, and snakebite. Leaves have been used to remove opacities of the cornea. In Java it is regarded as vermifuge. Holy men used it for meditation, and witch doctors used it to calm the mentally disturbed.

The total alkaloid content ranges from about 1.5 to 2.4% and is concentrated in the root bark, latex vessels, and secretory cells. Some of the more often reported alkaloids are ajmalicine, ajmaline, ajmalinine, alloyohimbine, chandrine, corynanthine, deserpidine, iscajmaline, neoajmaline, papaverine, raunatine, raunolinine, rauwolscine, rescinnamine, reserpiline, reserpine, reserpinine, reserpoxidine, sarpagine, serpentine, serpentinine, serpine, serpinine, thebaine (probably erroneous?), and yohimbine. Reserpine not only tranquilizes, but lowers blood pressure, taking several days for early effects to be felt, several weeks before total effects are realized. Emboden speculates that the reserpine in the body is transformed into secondary active substances. "Remarkable cures have been achieved in cases of acute schizophrenia, migraine headaches, high blood pressure, and withdrawal from opiates."⁵⁴

Toxicity — Listed by Emboden as a narcotic tranquilizer,⁵⁴ often leading to bizarre dreams. Reserpine, the active tranquilizing ingredient, recently got bad press as a carcinogen, far exceeding in its publicity what the public received by the press retraction. Side effects of *Rauwolfia* preparations include drowsiness, bradycardia, salivation, nausea, hypergastric secretions, nasal congestion, and diarrhea, and certain endocrine disorders (fertility depression, inhibition of menstruation, feminization, and impairment of sexual function in males). Mental depression has often been severe enough to lead to suicide.