

127. *EPHEDRA GERARDIANA* Wall. ex Stapf (EPHEDRACEAE) — Pakistani Ephedra

Fruits said to be edible.¹ This high-yielding source of ephedrine nearly gives Pakistan a monopoly for this naturally produced drug. Ephedrine is extracted from the green branches and possesses the same properties as ephedrine from *E. sinica*, with a higher total alkaloid content, from 1.0 to 2.5%. Ephedrine excites the sympathetic nervous system, depresses smooth and cardiac muscles, produces a lasting rise in blood pressure, and diminishes hyperemia. Ephedrine acts like epinephrine or adrenalin but can be given orally as well as by injection. Pseudoephedrine and ephedrine, both now synthesized, appeared, respectively, in nearly 14 million (0.90% of all prescriptions) and nearly 12 million (0.77%) prescriptions in the U.S. in 1973.⁹⁸ Prescribed in the U.S. for asthma, emphysema, hay fever, and rhinitis. Orally ephedrine has helped in enuresis, epilepsy, myasthenia gravis, and urticaria accompanying angioneurotic edema.¹⁷ D-Pseudoephedrine is cheaper and less toxic than ephedrine and has been used in asthma with good results. The rhizomes may have football-sized knobs used as fuel in Tibet.¹

Chinese, like the Pakistanis and others, have long treasured ephedra for allergy, asthma, cold, cough, diarrhea, eruptions, fevers, hayfever, headache, malaria, pertussis, and rheumatism.³³ Infusion used to prevent low blood pressure in flu, pneumonia, etc. Said to be alterative, diuretic, mydriatic, stomachic, sudorific, and tonic.²⁷ Homeopathically suggested for exophthalmia, headache, and struma.

In *E. gerardiana*, total alkaloids vary from 0.8 to 1.4%, about half ephedrine with D-pseudoephedrine, L-N-methylephedrine, L-norephedrine, D-N-methylpseudoephedrine, and D-norpseudoephedrine. Tannins (chiefly gallic and ellagic acid), saponin, catechins, and an essential oil containing a terpineol.³³

Toxicity — Classified by the FDA⁶² as an Herb of Undefined Safety: “Used as an antisyphilitic. Also used as an astringent. A Chinese species, *Ephedra sinica*, called ‘ma-huang’ in China, contains the alkaloid ephedrine, a powerful decongestant.” In large doses, ephedrine causes headache, indigestion, nervousness, flushing, numbing of the extremities, nausea, tingling, palpitations, and vertigo.¹ Contact dermatitis may occur at onset of application or as much as 2 years later.¹⁷