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PLANTS IN CARDIOLOGY

Rauwolfia serpentina Benth. ex Kurz. Rheede tot Draakestein, H A van. *Hortus Indicus Malabaricus*. Amsterdam: Johannes van Someren, 1686, volume 6, fig 47.

Reserpine and ajmaline

Rauwolfia serpentina (Apocynaceae) grows in India where it has been used in Hindu ayurvedic medicine since ancient times. The root resembles a snake and because of the Doctrine of Signatures it was given for snake bite. More importantly the root had a high reputation for calming the insane. In the 1930s psychiatric patients in Calcutta who were being treated with rauwolfia root were found to develop low blood pressure. Later the careful clinical trial of Vakil (*British Heart Journal* 1949;11:350-5) established its use in hypertension. Reserpine was the alkaloid that produced this effect and it was isolated in 1951. The term “tranquilliser” was coined in 1953 to describe its then unique calming and sedative effects. Mental depression limited its use in hypertension but another side effect, namely a parkinsonian syndrome, led to a remarkable therapeutic discovery. In 1959 Carlsson found that extrapyramidal symptoms in reserpine treated rabbits were caused by a deficiency of dopamine in the corpus striatum and that its precursor, dopa, reversed the symptoms. He pioneered levodopa treatment for Parkinson’s disease.

There are many rauwolfia alkaloids, and in 1931 ajmaline was the first one to be found. It was named after Hakim Azmal Khan who founded the institute in Delhi where it was isolated, but its Class I antiarrhythmic action was not discovered until about 1965.

Rauwolfia (spelt with a v) is a genus of the tropical family Apocynaceae with 2100 species, mostly climbers, that are rich in secondary compounds. The vinca alkaloids are found in *Catharanthus roseus*, the Madagascar periwinkle. The cardiac glycosides strophanthus and ouabain occur in *Strophanthus kombe* and *S gratus*.

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