

Therapeutics, Phytochemistry and Pharmacology of Rauwolfia Serpentina (Asrol): An important Unani Drug

Dr Mudassar Nazar AbNabi

Professor, Department of Tashreehulbadan, AL-Ameen Unani Medical College and Hospital; Dhule Road, SayneKhurd, Malegaon (Nashik)

Abstract: The extraordinary medicinal properties of *Rauwolfia serpentina* (Asrol) have brought this Unani drug plant to the attention of the medical world. All over the world, medicinal plants are occupying the main role in the traditional system of medicines which includes Siddha, Ayurveda, Unani, Yoga and Naturopathy. In the modern era, *Rauwolfia serpentina* (Asrol) is used as an effective Antihypertensive. Medical fraternity continues research on it. It helps to reduce blood pressure (FisnaruddamQawi) by dilating blood-vessels⁽¹⁾, depresses activity of central nervous system⁽²⁾ Psychiatric disorders (NafsiyatiAmraz) and acts as a hypnotic (munavem).its use in schizophrenia (Malan khuliyai), insanity (junoon), Sara (epilepsy), Hysteria (AkhtanaqurReham)⁽³⁾

Keywords: asrol, Rauwolfia, serpentine, hypertention

1. Introduction

Hakeem Ajmal khan established a research department with a college for research on indigenous medicine. After a lot of research, two young scientists, Mr Salimuzzaman Siddiqui and Dr Rafat Hussain Siddiqui, extracted an alkaloid from asrol. This alkaloid was named ajmeline relatively Hakim Sahab



Rauwolfia serpentina (Asrol) is one of the most important medicinal plants traditionally used for various medicinal and psychological purposes.

Scientific Classification

Kingdom: Plantae; Order: Gentianales; Family: Apocynaceae; Genus: *Rauwolfia* L. (devil's pepper); species: *rauwolfia serpentina* (Indiansnakewood or serpentine wood); Binomial name: *Rauwolfia Serpentina* (L) Benth

2. General Appearance

It is a dense shrub type plant that is two to three feet high. It is a flowering plant and the blooming time is within the month of November-December. The flower is pink and white in colour. The fruits are purple-black in colour. The leaves are 7-10 CMs long.

The root length is 5–15cm sub cylindrical to tapering, curved, rarely branched, externally light brown to greyish-

yellow to greyish brown, dull, rough or slightly wrinkled longitudinally. The root is easily broken when broken.⁽⁴⁾

Cultivation:

Rauwolfia serpentina (Asrol) is found near about all part of India, Bangladesh, Sri-lanka, Japan, China. Apart from this Burma Nepal Thailand etc. It requires bio-rich acidic sandy soil.

Preservation and storage:

The drug should be kept in airtight containers at cool dry place and keep out of reach of children.

Temperament (Mizaj)

Cold, Dry in 3rd degree⁽⁵⁾

Adverse Effects (Muzir)

Each drug has its own harmful and beneficial effects, The same thing happened in its case.

The following adverse reactions have been observed, but there are insufficient data to support an estimate of their frequency. The reactions are usually reversible and disappear when the *Rauwolfia* preparations are discontinued^(6,7).

Adverse side effects of *Rauwolfia Serpentina* (Asrol) include lethargy, sedation, hypotension, nausea, vomiting, abdominal cramping, gastric ulceration, nightmares, bradycardia, angina-like symptoms, bronchospasm, skin rash, itching, impotence or decreased libido, gynecomastia.⁽⁸⁾ dyspnoea, epistaxis. The most common side effect noted is nasal congestion.

Correctives (Musleh)

Filfisiyah (Piper nigrum Linn), Gul-e-Surkh / Ward / Gulab (Rosa damascene), Zafran (Crocus sativus), IlaichiKhurd (Elettariacardamomum) (L.), sdaf (Cypraea Moneta calcined)

Substitute (Badal)

Even after much effort, the substitute could not be achieved or establish.

Dosage (Miqdar-e-khurak)

500 mg to 1g(h) BD with (bdrqaa) aqueous distillate from bergegawzban (onasmabracteatum) , aqueous distillate from badyan (foeniculumvulgare), aqueous distillate from makohkhushk (solanumnigrum) , aqueous distillate from gulab (rosa damascene).

Avoid: ghee, milk, butter, meat, etc.

Phytochemical Studies

The name comes from Greek φυτόν (phyton), meaning 'plant'. Some phytochemicals have been used as poisons and others as traditional medicine. Phytochemicals are chemical compounds produced by plants, generally to help them thrive or thwart competitors, predators, or pathogens.

Alkaloids

Alkaloids are a class of naturally occurring organic compounds that mostly contain basic nitrogen atoms. This group also includes some related compounds with neutral⁽⁹⁾ So many alkaloids found in rauwolfia Some of them are worth mentioning

Ajmaline

Ajmaline is mainly isolated from the stem bark and roots of the plant. This alkaloid was first Derived in 1931 by SalimuzzamanSiddiqui from the roots of R. Serpentina plant. He named it Ajmaline in the honour of the illustrious practitioner of Unani medicine Hakim Ajmal Khan, one of the most illustrious practitioners of Unani medicine.⁽¹⁰⁾

These agents are primarily classified into four major groups on the basis of their mechanism of action i.e. sodium channel blockade, beta-adrenergic blockade, repolarization prolongation and calcium channel blockade. Ajmaline is a sodium channel blocker that shows instant action when given intravenously, which makes it ideal for diagnostic purposes. The administration of Rauwolfia alkaloid to patients with this type of arrhythmia is known as the "Ajmaline Test". It has been reported to stimulate respiration and intestinal movements. The action of ajmaline on systemic and pulmonary blood pressure is similar as of serpentine.⁽¹¹⁾

Due to the low bioavailability of ajmaline, a semisynthetic propyl derivative called prajmaline was developed that induces similar effects to its predecessor but has better bioavailability and absorption.⁽¹²⁾

AJMALICINE

Ajmalicine is structurally related to yohimbine, rauwolscine, and other yohimban derivatives. Like corynanthine, it acts as an α 1-adrenergic receptor antagonist with preferential actions over α 2-adrenergic receptors, underlying its hypotensive rather than hypertensive effects.^(12,13)

RESERPINE

An alkaloid found in the roots of Rauwolfiaserpentina. It was first approved by the FDA in 1955,⁽¹⁴⁾ Reserpine inhibits the uptake of norepinephrine into storage vesicles resulting in depletion of catecholamines and serotonin from central

and peripheral axon terminals. These substances are normally involved in controlling heart rate, force of cardiac contraction and peripheral resistance. It has been used as an antihypertensive and an antipsychotic as well as a research tool,⁽¹⁵⁾

Phenols

It is widely distributed in the plant kingdom mainly herbs, shrubs, vegetables. Phenols are secondary plant metabolites. Their presence prevents the growth of pest and pathogens in the plant. It shows significant antidiabetic and hypolipidaemic properties⁽¹⁶⁾

Pharmacological action (afaal-o khwaas-e advia)

hypotensive (*dafyeFisharuddamQawi*), headache due to migraine (*dard e shaqiqa*), nervine sedative(*Musakkin-e-Asab*), hypnotic(*Munawwim*), schizophrenia (*Malankhuliay*), insanity (*junoon*), epilepsy (*Sara*), Hysteria (*AkhtanaqurReham*)

Therapeutic use (mamool-e-matab)

RauwolfiaSerpentina(*Asrol*) has a lot of efficacy. Every ingredient is full of benefits. From ancient times Unani physician use this important medicine for various pathological condition like cardiac, neurological disorder, psychological and some spiritual diseases with high success. Due to its vasodilator and central nervous system depression effect its use as a hypotension agent and use for Hypertension (*ZaghtuddamQawi*). A study by Azmi and Qureshi (2012) showed therapeutic effects of Rauwolfia with incomplete hypoglycemic action in diabetic hypertensive patients.

It's very good hypnotic(*munavem*) so it's useful in mental agitation, insomnia and sedative

Flower: Flowers are useful in the treatment of cardiac disorder and arrhythmia and some kind of fear.

In NabzZulfitra (Intermittent pulse) Flowers of this medicine in quantity of 125 mg is useful. it is also useful in Tasalub-e-Sharaeen (arteriosclerosis)

Branches: branches in form of joshanda (decoction) is helpful in stomach ache biliary colic and renal colic. Its cleanser is useful for migraine, nerve pain, sore throat

Formulation (Unanimurakkabat)

Iksirshifa

3. Conclusion

RauwolfiaSerpentina(*Asrol*) is useful medicine and use by Unani physician from long time. its have many medical benefits like anti-hypertensive (*dafyeFisharuddamQawi*), anti-migraine (*dard e shaqiqa*), nervinesedative(*Musakkin-e-Asab*), vasodilator(*Mufattih*), hypnotic(*Munawwim*), Some stady show it's helpful in schizophrenia (*Malan khuliay*), insanity (*junoon*), Sara (epilepsy), Hysteria (*Akhtanaqur Reham*)

References

- [1] TajulHikmat Practice Of Medicine , BY: Dr Hakeem Hari Chand Multani.
- [2] Singh R.K., Singh A., Rath S., Ramamurthy A., A review of Sarpagandha – whole herb v/s Reserpine –its Alkaloid in the management of the hypertension, International Ayurvedic Medical Journal,3(2) , 2015, 565-569.
- [3] Essential Drugs list (EDL) Unani Medicine Department of AYUSH (Drug Control Cell)Minstry of Health and Family Welfare Government of India,March 2013.
- [4] National formulary XIV. Washington, DC, National Formulary Board, American Pharmaceutical Association, 1975.
- [5] Book unaniadviamufrada, By Hakeem sayedsafi_uddinali.
- [6] Physicians' desk reference. 45th ed. Montvale, NJ, Medical Economics Company, 1991.
- [7] American Hospital Formulary Service drug information 94. Bethesda, MD,American Society of Health System Pharmacists, 1994.
- [8] Reserpine. International Programme of Chemical Safety Web site. [Accessed September 25, 2014].
- [9] IUPAC, Compendium of Chemical Terminology, 2nd ed. (the "Gold Book") (1997). Online corrected version: (2006–) "alkaloids". doi:10.1351/goldbook.A00220
- [10] Siddiqui S, Ahmad SS, Haider SI, Siddiqui BS (1985). Isolation and structure of a new alkaloid from the roots of RauwolfiaSerpentinaBenth. Heterocycles 3:617-622.
- [11] Prusoff W.H., Effect of reserpine on the 5-hydroxytryptamine and adenosinetriphosphate of the dog intestinal mucosa, British Journal of Pharmacology, 17, 1961, 87-91
- [12] León F, Habib E, Adkins JE, Furr EB, McCurdy CR, Cutler SJ (July 2009). "Phytochemical characterization of the leaves of Mitragnaspeciosa grown in U.S.A". Natural Product Communications. 4 (7): 907–10. PMID 19731590.
- [13] Roquebert J, Demichel P (October 1984). "Inhibition of the alpha 1 and alpha 2-adrenoceptor-mediated pressor response in pithed rats by raubasine, tetrahydroalstonine and akuammigine". European Journal of Pharmacology. 106 (1): 203–5.
- [14] <http://drugcentral.org/drugcard/2370>
- [15] drugbank.ca/drugs/DB00206
- [16] Qureshi SA, Udani SK (2009) Hypolipidaemic activity of RauwolfiaserpentinaBenth. Pak J Nutr 8(7): 1103-1106.