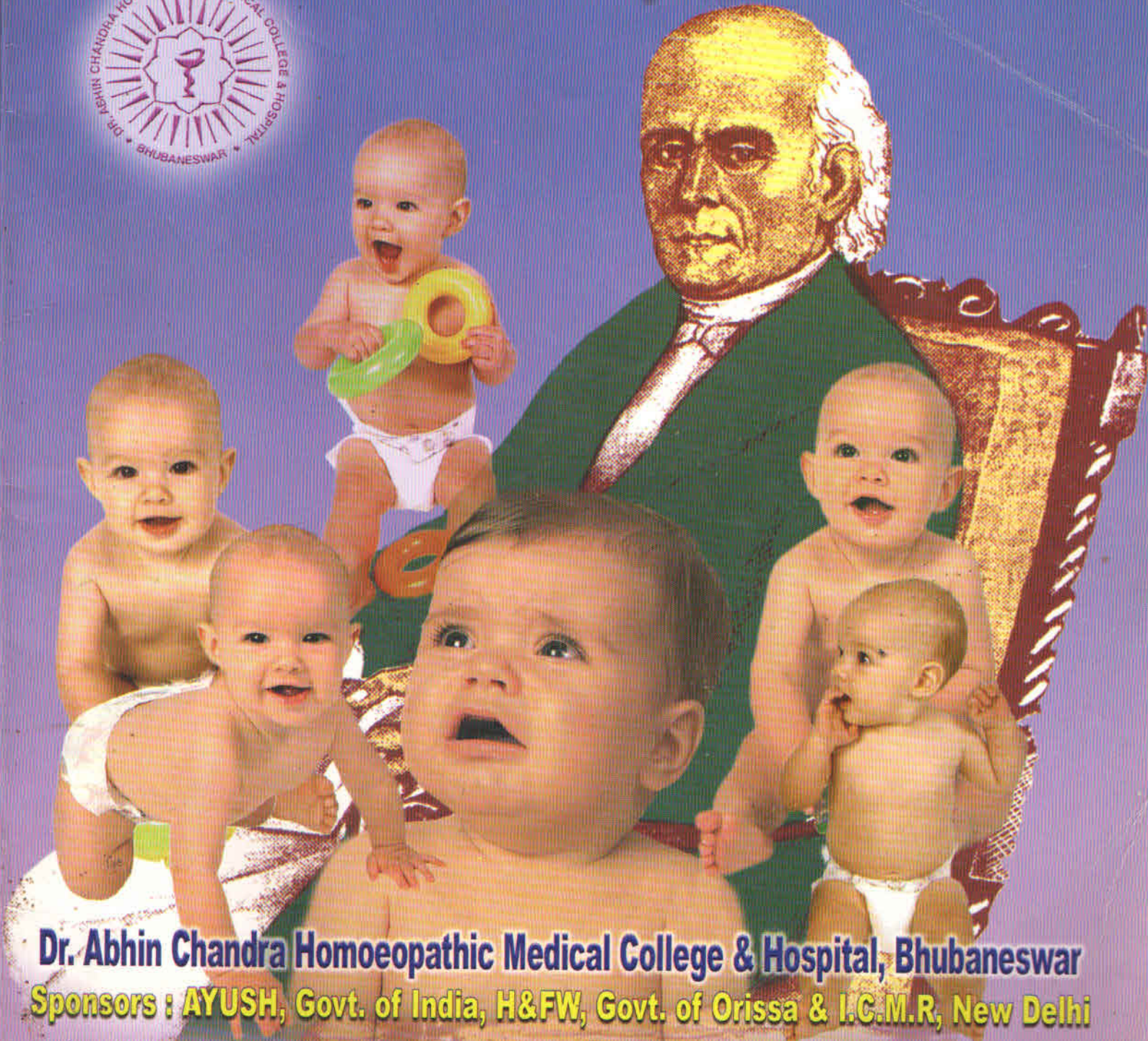


# **National Seminar - 2007**

On

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**Dr. Abhin Chandra Homoeopathic Medical College & Hospital, Bhubaneswar**

**Sponsors : AYUSH, Govt. of India, H&FW, Govt. of Orissa & I.C.M.R, New Delhi**

**Venue : Jayadev Bhawan, Sachivalaya Marg, Bhubaneswar**



## A CLINICAL EVALUATION OF EFFECT OF RAUWOLFIA SERPENTINA ON HYPERTENSION

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### Abstract

Reserpine is a chief alkaloid of *Rauwolfia serpentina*, a popularly used drug for hypertension has been used for a long time had side effects such as sedation, depression, parkinsonism, stuffiness of nose, suicidal tendency etc, when used for a prolonged period. No or mild side effects has been observed or reported when total alkaloid in the form of mother tincture of *Rauwolfia serpentina* is used instead of Reserpine.

### Introduction

Hypertension is high blood pressure, generally defined as systolic/diastolic blood pressure measurements of equal to or greater than 140/90 mm Hg. It is the 13th leading cause of death nationwide and was the primary cause of death for 42 Kansas Citians in 2004, with 37 (88%) of the deaths occurring among residents of the Jackson County portion of Kansas City.

In some Industrialised countries, up to 25% of adults have diastolic pressures above 90 mmHg. Prevalence in the developing countries seems to be similar to that in European or other technically developed societies ranging from 10% to as much as 20% among adults.

### Prevalence in India

The data are derived from two well planned studies which screened all persons aged 20-60 years and followed WHO suggested criteria for diagnosis. The one in Rohtak is taken to represent the urban population and other in a village in

Haryana to represent rural population in India. The prevalence of Hypertension (HTN) was 59.9 and 69.9 per 1000 in males and females respectively in the urban population, and 35.5 and 35.9 per 1000 in males and females respectively in the rural population.

A number of homoeopathic drugs like *Allium sativa*, *Aurum met.*, *Baryta mur*, *Conium*, *Crataegus*, *Glonoine*, *Strontium*, *Tabacum*, *Rauwolfia serpentina* etc are used for HTN. *Rauwolfia serpentina-Q* is most commonly used drug for HTN by the homoeopaths since early 1950s.

*Rauwolfia* is substituted with several species like *R. densiflora*, *R. perakensis*, *R. tetraphylla* which is also known as *R. canescens* contains uniform cork abandon sclerides and fibres. It contains no rescinnamine. The root of *R. vomitoria* contains five discontinued bands of scelenchyma and very large vessels.

**Latin Name:** *Rauwolfia Serpentina*, **Local Name :** Reserpine, *Rauwolfia*, Serpent wood, Sarpagandha, **Parts Used :** Roots

### Distribution:

In India, *Rauwolfia serpentina* is widely distributed in the sub-Himalayan tract from Punjab eastwards to Nepal, Sikkim, Bhutan and Assam; lower hills of Gangetic plains; Eastern and Western Ghats; parts of Central India and in the Andamans.

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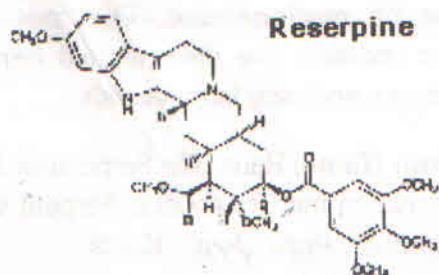
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The main alkaloid of the drug reserpine was also used by allopathic doctors in the past and now it is obsolete because of its side effects such as sedation, depression, parkinsonism, stuffiness of nose, suicidal tendency etc, when used for a prolonged period. No such side effects has yet been observed or reported by homoeopaths while using *Rauwolfia serpentina* Q.

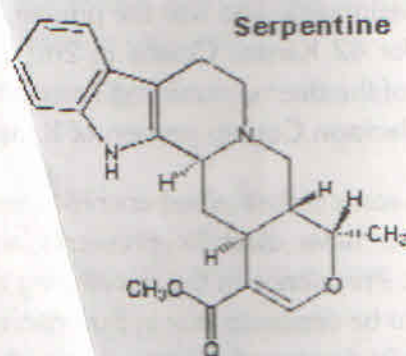
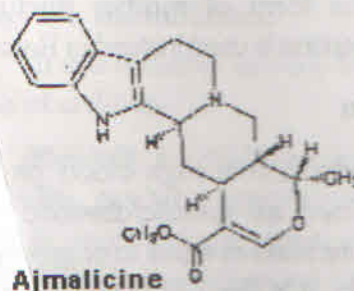
### Principal Constituents

Reserpine is the most important alkaloid present in root, stem and leaves of the plant. It varies from 1.7 to 3.0 %. The root barks has more than 90% of the total alkaloids in roots.



The mechanism of action, the expected effects, and the indications of reserpine. It blocks the uptake of biogenic amines (dopamine, norepinephrine, and serotonin) into the transmitter vesicles, and the storage there. The uptake pump is probably  $Mg^{2+}$  and ATP dependent. This occurs throughout the body, including the central nervous system, where reserpine depletes catecholamines in neurons. This action is largely irreversible. Depletion of

The % of the alkaloid depends on the geographical place from where the plant is collected and also the season of collection. Generally samples from Assam have a higher % of alkaloids (2.57 %) than the other parts of India and December is the best month for the collection for getting more % of alkaloids. But, age of the plant has no effect on the % of alkaloid content (up to 4 years). Ajmalicine, ajmaline, isoajmaline, ajmalinine, chandrine, rauwolfinine, renoxidine, rescinnamine, reserpiline, reserpin, reserpine, sarpagine, serpentine, serpentinine, tetraphyllicine, yohimbine, 3-epi-a-yohimbine are the minor alkaloids identified from samples collected from India.



peripheral stores of catecholamines accounts for much of the beneficial antihypertensive effect of reserpine. Depletion of central amine stores is responsible for the side effects, including sedation, depression, and parkinsonism.

During the scientific controversy in the 1950's surrounding the question of whether reserpine by itself was superior to the whole rauwolfia root, an Indian physician named Dr.



Vakil reviewed all 151 studies available at the time. He came to the conclusion that the combined action of the whole root improves tolerance and reduces the risk of side effects that occur with the use of isolated alkaloids (reported in Weiss, 1988).

### Research Highlights

- In 1953, Vakil reported a good response to the alkaloid reserpine in 72% of the cases of hypertension, and few side effects. In 1954, he reviewed the indications, contraindications, dosing regimens, efficacy, and adverse effects of *Rauwolfia*. He also suggested useful drug combinations for the management of hypertension. In 1955, in another series of 100 cases of essential hypertension, Vakil showed that *Rauwolfia* was a useful antihypertensive remedy, capable of lowering both systolic and diastolic pressures, free of serious ill effects, easy to administer, and applicable to most cases of high blood pressure; he also showed that most cases of mild or moderate hypertension, particularly of the labile type, were amenable to *Rauwolfia* alone, while more severe forms of hypertension, particularly when associated with fixed levels of pressure, yielded better results with combined therapy.
- The mechanism of action of *rauwolfia* root differs from most other blood-pressure lowering agents, acting on the central nervous system. This may explain why it works when other medicines fail (Weiss, 1988, Shibuya and Sato, 1985).
- In doses higher than those used for hypertension, *rauwolfia* alkaloids cause a depletion of norepinephrine, resulting in a tranquilizing effect. Very high doses can cause a loss of coordination (reported in Huang, 1999).
- Many patients who take medication to control hypertension still have problems with balance,

due to difficulties in circulatory regulation. Upon examination of blood-pressure lowering agents available up to 1980, researchers discovered that only *Rauwolfia* alkaloids and clonidine do not have an undesirable influence on balance (Teichmann and Vogel, 1980).

- Studies in Hyper tension ( 1955) with Reserpin and total alkaloids (Serpina) of *Rauwolfia serpentina*, By Dr. D.P. Basu, M.B., M.R.C.P. (Lond.), Ph.D. (Edin.), Honorary Senior Visiting Cardiologist, S.S.K.M. Hospital, Calcutta, made a comparative study of 80 cases of various types of hypertension treated with (a) Reserpin, (b) the total alkaloids of *Rauwolfia serpentina* (Serpina), (c) combination of Reserpin and the total alkaloids, where Reserpin dose was higher, and (d) combination of Reserpin and the total alkaloids, where the dose of the total alkaloids was higher. The total alkaloids gave better and earlier results than Reserpin. Bradycardia and diarrhoea were more marked with Reserpin than with the total alkaloids. A feeling of well-being was noticed in all cases with *Rauwolfia serpentina*, irrespective of fall in blood pressure.
- Treatment of Mental patient with a preparation of the total total alkaloids of *Rauwolfia serpentina* Torsigno, M. and Zucchi, MTwenty institutionalized mental patients, 18 of them with chronic schizophrenia, were given a preparation containing the total alkaloids of *Rauwolfia serpentina*. During the therapy period, improvement of the symptoms, especially of the psychomotor agitation, was seen in all but one patient. Twenty days after discontinuance of the therapy, marked improvement was present in 14 patients; the psychomotor agitation had disappeared; greater social and environmental interest was present in all; and, in one patient, a slight improvement in



dissociation was present. The effects obtained with the total alkaloids of *Rauwolfia serpentina* are comparable to those obtained with reserpine alone but with the former the side-reactions are none or very slight. The neurological symptoms of Parkinsonian type that are experienced subjectively and objectively by patients treated with reserpine alone were never observed in these patients, nor was water retention noted. The amount of reserpine present in the preparation of total alkaloids given to these patients was notably smaller (2.5 mg in 10 mg of the preparation) than that usually given when reserpine alone is used. The authors attribute to the other alkaloids present in *Rauwolfia serpentina* a therapeutic action on mental disease that is similar to that of reserpine.

- Comparative activity of Reserpine and total Alkaloid of *rauwolfia serpentina*, by Kohli. J.D and Mukerji, Central Drug Research Institute, Lucknow, India, on central nervous system depressant effect in monkey and dogs reveals that depressant effect of total alkaloid of *R. serpentina* is greater than the amount of reserpine present in the total alkaloids.

The drug *Rauwolfia serpentina* was introduced in homoeopathy by Dr. W. Templeton. The proving was done by the faculty of Homoeopathy at London. Since then this drug is popularly used for Hypertension by all the Homoeopathic physicians.

All Homoeopaths also agree with the above cited fact that the mother tincture which contain total alkaloid of *Rauwolfia serpentina* have better effect on Hypertension without any side effect than reserpine.

From the clinical study done by Dr. Rastogi on 1x Potency of *Rauwolfia serpentina* in aqua on 52 patients suffering from essential Hypertension and were followed up for five yrs,

it was seen that no such adverse effect was produced by the drug and he explains that along with the total alkaloids, the same plant contains some anti toxic agents. And hence when the drug as a whole triturated to 1x Potency this antitoxic agent and the toxic effect of alkaloids are balanced in giving no adverse effect on prolonged use.

The entire juice of root of the plant after preparation according to the principle of H.P.I perhaps contains some antitoxic agents for which when *Rauwolfia serpentina* juice extract along with alcohol prescribed by homoeopaths has no side effects even after prolonged use.

I am enlightening the clinical experience of *Rauwolfia Serpentina* on hypertension statistically.

### Material Methods

Out of 70 cases, 25 cases were treated with *Rauwolfia Serpentina Q* only, 30 cases were treated with both *Rauwolfia Serpentina Q* and constitutional medicines and 15 cases were treated with only constitutional medicines. The doses being 15 drops twice daily for patients suffering from mild Hypertension, 15 drops thrice daily for moderate hypertension. Cases with severe Hypertension are excluded from the study. The study was taken over a period for three months.

### Observation & Results-

Cases treated by *Rauwolfia Q*

Result analysis	No. of cases	Percentage
Positive result	20	80
Negative result	05	20
Total result	25	100

Cases treated by *Rauwolfia Serpentina Q* and Constitutional Medicines



Result analysis	No. of cases	Percentage
Positive result	26	86.66
Negative result	04	13.34
Total	30	100

Cases treated by constitutional medicines (Suffering from Hypertension & with less number of physical and mental general symptoms)

Result analysis	No. of cases	Percentage
Positive result	8	54
Negative result	7	46
Total result	15	100

**Discussion** - The drugs are found to be effective for Essential Hypertension rather than

secondary Hypertension. It takes initially 10 to 15 days time for reduction of blood pressure. It requires prolonged repetition for maintenance of it. No side effect is observed in most of the patients. When constitutional medicine could not be selected in asymptomatic cases of hypertension Rauwolfia Q is found to be helpful as a specific medicine. Patients with less pronounced symptoms responded better to Rauwolfia Q & Constitutional medicines. Hypertension cases with well presented symptoms pointing to a constitutional; drug are excluded in this study.

#### **Further study**

Further study will be done on the action of Rauwolfia serpentina in Biochemical and Molecular level on Hypertensive rat model.

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*All children are gifted, Some just open their present later than others.*

*Children in a family are like flowers in a bouquet*