



Rauwolfia vomitoria Afzel. Monograph

NB: This monograph is designed to provide historical background and an overview of past and current scientific research. This information should not be interpreted as medical advice. Consult with a qualified healthcare provider regarding therapies, diagnosis and possible treatment.

Related Terms

Rauwolfia; apocynaceae; alstonine; reserpine; BG8; Rovol V®; alkaloid; β -carboline; specificity; synergy; prostate; ovaries; pancreas; combination therapy

Background

The generic name *Rauwolfia*, is named after the 16th century German physician, Leonhart Rauwolf, who travelled the world over collecting and documenting medicinal plants. The specific epithet “vomitoria” refers to the purgative and emetic properties of the bark.⁽¹⁾ *Rauwolfia* alkaloid producing species usually produce several alkaloids, including reserpine - the first antipsychotic medication used in modern medicine. It is worth remembering that reserpine is the major component of herbal preparations used to treat mental illness in India for centuries before its re-discovery in the 20th century by the contemporary biomedical paradigm ⁽²⁾ and it is still the treatment of choice in some parts of Africa.⁽³⁾ Reserpine is a prominent alkaloid, but once removed, other minor components (including alstonine) may offer a wealth of benefits.

References

⁽¹⁾ PROSEA World Agroforestry Database (2015) Retrieved on:

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⁽²⁾ [The Alkaloid Alstonine: A Review of Its Pharmacological Properties](#)

E. Elisabetsky and L. Costa-Campos

Evid Based Complement Alternate Med. 2006 Mar; 3(1): 39–48. Published online 2006 Jan 16. doi: 10.1093/ecam/nek011

⁽³⁾ [Comparative Effects of Rauwolfia Vomitoria and Chlorpromazine on Social Behaviour and Pain.](#)

Sunday Bisong, PhD., Richard Brown, PhD., and Eme Osim, PhD.

N Am J Med Sci. 2011 Jan; 3(1): 48–54.

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Scientific Name and Taxonomy

Rauwolfia Vomitoria Afzel. (Apocynaceae)

Synonyms: *Rauwolfia Senegambiae* A. DC. ⁽¹⁾

Reference

⁽¹⁾ Tropicos® Botanical Garden Database.

Published in the Internet. URL <http://www.tropicos.org/Name/1805350?tab=synonyms> Retrieved Sept. 18th, 2015.

Common Names



African Snake Root, Poison Devil's Pepper,

Botanical Description

Rauwolfia vomitoria is a shrub or small tree up to 8 m. Older parts of the plant contain no latex. The branches are whorled and the nodes enlarged and lumpy.

Leaves are in threes, elliptic-acuminate to broadly lanceolate.

Flowers are minute, sweet-scented, branches of inflorescences are distinctly puberulous with hardly any free corolla lobes.

Fruits are fleshy and red in color. ⁽¹⁾

Reference

⁽¹⁾ World Agroforestry Center® database. Published in the Internet. URL

http://www.worldagroforestry.org/treedb/AFTPDFS/Rauwolfia_vomitoria.PDF

Retrieved Sept. 18th, 2015.

Geolocalization

Rauwolfia vomitoria is native to tropical Africa.

Reference

⁽¹⁾ Tropicos® Botanical Garden Database. Published in the Internet. URL

<http://www.tropicos.org/Name/1805350?tab=specimens>. Retrieved Sept. 18th, 2015.

Management and Harvesting

Rauwolfia vomitoria can be coppiced or pollarded. Roots may be harvested annually in a non-destructive way by cutting them 10 cm from the taproot.

Traditional Use

Rauwolfia is used traditionally against snake bites, fever and nervous disorders. In Ghana and Nigeria, it is used as an emetic and purgative. In the same regions, children are treated with this plant for cerebral cramps, jaundice and gastrointestinal disorders. Kutalek and Prinz (2007) report further that a watery solution of the bark of *Rauwolfia* V.A. can be used against such parasites as lice and scabies. In Mali, the root of *Rauwolfia* is used to treat hemorrhoids and hepatomegaly. It is also used in Mali as a sedative for mentally ill persons, and for treating tetanus and epilepsy. ⁽¹⁾

The roots of *Rauwolfia* are good for the treatment of snake bites, insect stings, nervous disorders, mania, epilepsy, intractable skin disorders such as psoriasis, excessive sweating, itching, hypertension, sedative, uterine contraction in child birth and as a gynecological ointment for the treatment of menopausal disorders. ⁽²⁾

Dried root of *Rauwolfia vomitoria* has also been reported being effective with minimum side effects in psychiatric patients in Nigeria. ⁽³⁾



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(1) [African Medicinal Plants](#)

Z. Yaniv; U. Bachrach; R. Kutalek; A. Prinz
Eds. Handbook of medicinal plants: New Delhi 2007, CBS publishers.

(2) [Agro- Techniques of Medicinal Plants](#)

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Daya Publishing House, 2004, India

(3) [Antipsychotic Effects and Tolerance of Crude Rauwolfia Vomitoria in Nigerian Psychiatric Inpatients](#)

A. Obembe, E. N. Sokomba, O. A. Sijuwola, P. O. Olorunfemi, T. O. E. Alemika, C. O. Isichei, O. O. Ogunkeye and A. B. Bangudu
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Modern Use

The main alkaloid present in Rauwolfia, called reserpine, was first discovered by the Swiss scientists, Schiller and Muller of CIB Pharmaceuticals in Switzerland in 1952. Reserpine was a major constituent of antihypertensive drugs.⁽¹⁾ Nowadays, reserpine is available as a tablet to take by mouth and is used to treat high blood pressure. It also is used to treat severe agitation in patients with mental disorders.⁽²⁾

Mirko Beljanski was the first to develop a reserpine-free extract from the bark of the root of Rauwolfia. Because it is free of the main ingredient of the crude extract of *Rauwolfia vomitoria*, Beljanski's extract has a completely different activity profile.

Alstonine, another β -carboline alkaloid also present in Rauwolfia, has been isolated and studied since 1952.⁽³⁾ Beljanski perfected a Rauwolfia vomitoria extract standardized in alstonine, but devoid of reserpine. Beljanski noted that once reserpine was removed from the Rauwolfia extract, the extract had very low toxicity, no hypertensive effect, but a selective effect on cancer cells.⁽⁴⁾ Alstonine is naturally fluorescent and it is so specific to cancerous cells that Beljanski used it as a diagnostic agent designed for selective detection of tumors in cytogenetic tests. The diagnostic agent has application in preoperative and postoperative diagnoses. Beljanski's invention was recognized and patented.⁽⁵⁾

More recent research has emphasized the anticancer activity of reserpine-free Rauwolfia vomitoria extract on prostate⁽⁶⁾, pancreatic⁽⁷⁾ and ovarian⁽⁸⁾ cancer cells, as well as the synergy of action with chemotherapy.

Recent research also indicates that alstonine could to help fight schizophrenia⁽⁹⁾, and a tea made of Rauwolfia, Citrus leaf, could have some anti-diabetic properties.⁽¹⁰⁾

References

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(2) Reserpine: MedlinePlus Drug Information, Retrieved on Internet (2015): www.nlm.nih.gov > Home > Drugs, Herbs and Supplements

(3) [Isolation of Alstonine from African Species of Rauwolfia](#)

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M. Beljanski, S. Crochet

International Journal of Oncology 8:1143-1148, 1996.

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Jun Yu, PhD; Yan Ma, PhD; Jeanne Drisko, MD; Qi Chen, PhD.

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Toxicity

There is evidence that reserpine is toxic and is probably to be a human carcinogen.⁽¹⁾



Once the *Rauwolfia vomitoria* extract has been purified from its reserpine content, the toxicity of the extract is drastically reduced.

Although the purified extract, standardized in alstonine, was available in Europe since the mid 1980's^(2,3), it was new to the USA. [Natural Source International, Ltd.](#), the manufacturer of the Beljanski® products, notified the FDA in 1997 of a reserpine-free *Rauwolfia vomitoria* extract as a New Dietary Ingredient, and submitted an information file showing the very low toxicity of the extract in animals studies.⁽⁴⁾ A statement of nutritional support was also submitted to the FDA for ROVOL V®.⁽⁵⁾

No public data is available from any other supplier.

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Mechanism of Action

Reserpine free *Rauwolfia vomitoria* extract significantly suppressed the growth and cell cycle progression of LNCaP cells, in vitro and in vivo. ⁽¹⁾

Reference

(1) [Anti-Prostate Cancer Activity Of B-Carboline Alkaloid Enriched Extract From Rauwolfia Vomitoria](#)
D.L. Bemis; J.L. Capodice; P. Gorroochurn; A.E. Katz; R. Buttyan
International Journal of Oncology 29: 1065-1073- July 2006

Possible Interactions

Rauwolfia vomitoria offers a synergistic effect that may enhance the effect of chemotherapy and allow for reduced toxicity ^(1,2)

(1) [Antitumor Activities Of Rauwolfia Vomitoria Extract And Potentiation Of Gemcitabine Effects Against Pancreatic Cancer](#)



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Side Effects/ Contraindication

Side effects of reserpine and crude Rauwolfia extracts may include Acid-Base problems with low chloride and high blood pH, dizziness, imbalance in body salts including potassium and sodium (low levels of potassium and/or sodium in the blood. ⁽¹⁾ Avoid in case of weak pulse and low blood pressure.

Side effects with reserpine-free Rauwolfia extract (ROVOL V[®]) have not been reported. No known contraindication.

Reference

⁽¹⁾ WebMD Database. Retrieved on internet (2014) URL: <http://www.webmd.com/drugs/2/drug-53612/rauwolfia-bendroflumethiazide-oral/details/list-sideeffects>

Allergies and Warnings

Avoid with known allergy or hypersensitivity to *Rauwolfia vomitoria*, its constituents, or other members of the Apocynaceae family

Interaction with food, other drugs or other dietetic products

No known interactions

Statement of the manufacturer is that there are no GMO or BSE/TSE issues

No GMO/BSE/TSE with ROVOL V[®]

Author Information

This information is based on a systematic review of scientific literature edited and peer-reviewed by contributors to The Beljanski Foundation