Lat	Aconitum napellus
PT	acónito
EN	Monkshood
DE	Blauer Eisenhut
SE	nordisk stormhatt
RU	Аконит аптечный
FR	Capuchon
FI	lehtoukonhattu
HU	Erőteljes sisakvirág

076

Monkshood
Acónito

RANACONA
Ranunculaceae
Aconitum of 65 genera

Medicinal Action and Uses - лекарственные действия и использования - ações e usos medicinais

Action: Cardioactive; slows the heart via the vagus nerve. Antibacterial, antiviral, antifungal.

Uses: Used in conventional medicine for many years as a heart relaxant, to lower blood pressure and relieve capillary engorgement, but internal use now discontinued in the UK. Facial and intercostal neuralgia. Pains of rheumatism, lumbago and arthritis (liniment). Pains of arthritis and gout: Tincture Aconite 2; Tincture Colchicum 1. 10 drops thrice daily. (Dr Rudolf F. Weiss, “Herbal Medicine”, Beaconsfield)

Preparations: Tincture: Dose: 2-5 drops, thrice daily. Practitioner only. Alternative dosage sometimes used in fevers: 5 drops in 100ml water: 1 teaspoon hourly – until temperature falls or improvement is noted. Standardised product: Aconitysat (Buerger): 5-10 drops or more. Liniment. 1.3 parts tincture to 100 parts Witch Hazel. Note. Widely used in its homoeopathic preparation. Pharmacy only sale.

Аконит белоустый - это ядовитое растение. Употребление его в больших дозах очень опасно, но при этом он обладает ярко выраженными лечебными свойствами. Корень способен оказывать антибактериальное действие, выжимка из листьев обезболивает ревматические боли. Часто используют его как противопростудное средство. Переработка клубней и корней растения позволяет выделить вещества, которые необходимы в медицине для создания лекарств. На их основе делают болеутоляющие препараты, жаропонижающие средства. Самыми известными препаратами являются аллопинин и аллапикин. Они предназначены для лечения сосудов и сердца, снижают аритмию, улучшают общее самочувствие человека, нормализуют давление. Выпускаются препараты в ампулах и таблетках. Иногда их прописывают внутривенно или внутримышечно. Аконит активно исследуется для лечения онкологических заболеваний. Алкалоиды этого растения действуют на клетку человека, блокируют питание отдельного участка, что позволяет влиять на очаги болезни. Правильно используя отравляющее действие растения, можно предотвратить увеличение опухолей, а также развитие метастаз. Большинство препаратов подобного типа считаются экспериментальными, но в ближайшем будущем новые технологии позволят эффективнее бороться с указанными недугами.

Абсолютно все части этого растения содержат алкалоиды. Это ядовитые вещества, вредные для здоровья человека. Самое большее количество алкалоидов содержится в корнях растения во время плодоношения, а в стеблях и листьях – в самом начале и во время цветения. В корнях и корневищах содержится 0,9 - 4,9% алкалоидов различных групп (аксинатин, аксин, лаппаконитин, мезаконитин, эксцелазин), а также кумарины, дубильные вещества, флавоноды. Листья и стебли содержат большое количество различных микроэлементов, а также витамин С.

Аконит используют в народной медицине с большой осторожностью. Передозировка его может привести к летальному исходу, а правильно приготовленный настой можно применять для наружных растираний. Аконит помогает при болезнях суставов и позвоночника. Регулярные наложения настойки в виде компресса или втирания дают результат через пару недель. Делать лекарства с этим растением самостоятельно очень опасно, при необходимости нужно обратиться к лекарю, который подберет правильные пропорции для лечения.

Acónito é uma planta venenosa. Seu uso em grandes doses é muito perigoso, mas ao mesmo tempo tem propriedades medicinais pronunciadas. A raiz pode ter um efeito antibacteriano, o extrato das folhas alivia dores reumáticas. Geralmente é usado como remédio para tosse. O processamento dos tubérculos e raízes da planta permite isolar as substâncias que são necessárias na medicina para criar medicamentos. Com base neles, são feitos analgésicos e antipiréticos. Destinam-se ao tratamento dos vasos sanguíneos e do coração, reduzem a arritmia, melhoram o bem-estar geral de uma pessoa e normalizam a pressão arterial. Os medicamentos estão disponíveis em ampolas e comprimidos. Às vezes, eles são prescritos por via intravenosa ou intramuscular. Acónite está sendo pesquisada ativamente para o tratamento do câncer. Os alcalóides desta planta atuam na célula humana, bloqueando a nutrição de uma área separada, o que lhes permite influenciar os focos da doença. Usando corretamente o efeito tóxico da planta, é possível prevenir o crescimento de tumores, bem como o desenvolvimento de metástases. A maioria dos medicamentos desse tipo é considerada experimental, mas, num futuro próximo, novas tecnologias possibilitarão um tratamento mais eficaz dessas doenças.

Absolutamente todas as partes desta planta contêm alcalóides. São substâncias tóxicas que prejudicam a saúde humana. A maior quantidade de alcalóides é encontrada nas raízes da planta durante a frutificação, e nos caules e folhas - no início e durante a floração. As raízes e os rizomas contêm 0,9 a 4,9% de alcalóides de vários grupos (axinatina, axina, lappaconitina, mezaconitina, excelazina), bem como cumarinas, taninos, flavonoides. Folhas e caules contêm uma grande quantidade de vários oligoelementos, bem como vitamina C.

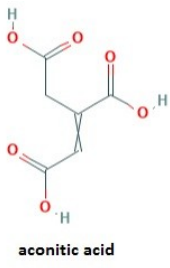
O acónito é usado com muito cuidado na medicina popular. Uma overdose pode ser fatal e uma infusão adequadamente preparada pode ser usada para fricção externa. Aconite ajuda com doenças das articulações e da coluna vertebral. A aplicação regular da tintura na forma de compressa ou fricção dá resultados em algumas semanas. É muito perigoso fazer sozinho medicamentos com esta planta, se necessário, você precisa entrar em contato com um médico que irá selecionar as proporções corretas para o tratamento.

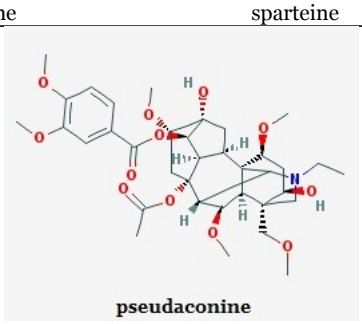
nervous diseases	nervos, doenças nos	нервной системы, заболеваний

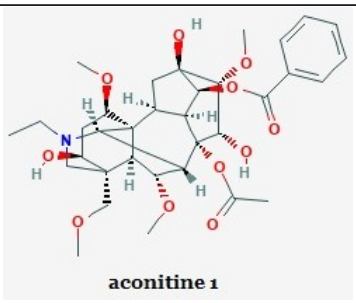
nervous pain	neuralgia	невралгия
nervous fever	febre, nervosa	лихорадка, нервная
neuralgias	neuralgia	невралгии
paralysis	paralisia	паралич
gout	artrite, artritismo	подагра
rheumatism	reumatismo	ревматизм
articular pain	articulação, dores na	суставах, боль в
articular inflammation, arthritis	articulação, inflamação na	суставов, воспаление в
sciatica	nevralgía, ciática	ишиас
headache	cabeça, dor de	головная боль
fever	febre	лихорадка
pulmonitis	pneumonia	пневмония
meningitis	meningite = infl. do membrana cerebral	менингит = воспаление мембраны головного мозга
throat catarrh	faringe, garganta, catarro	глотки, катар
diphtheria	difteria	дифтерия
measles	sarampo	корь
blood pressure lowering	hipertensão, anti-~	гипотензивный
pulse rate decreasing	pulso, taxa diminuindo	пульса, уменьшение частоты
palpitation	taquicardia	тахикардия = фибрилляция
asthma, choking	asma, ataques asfixiantes	астма, удушающие атак
oral diseases	orais, doenças ~	полости рта, заболевания
toothache	dentes, dor nos	зубы, боль в
dental inflammation	dentário, inflamação ~	зубного, воспаление ~
lice	piolhos	вши
insecticide	insecticida	инсектицид

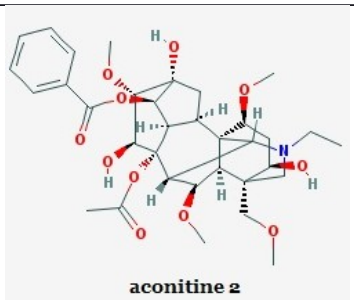
Chemical constituents - химические составляющие - constituintes químicos

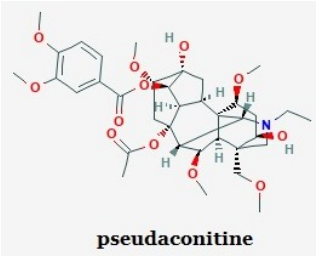
napelline	pseudaconitine = acetylveratroylpseudaconine	alkamines	acetic acid
aconitine	pseudaconine	tannines	maltose
mesaconitine	indaconitine	aconitic acid	melobiose
hypaconitine	ephedrine	veratric acid	
neopelline	sparteine	benzoic acid	

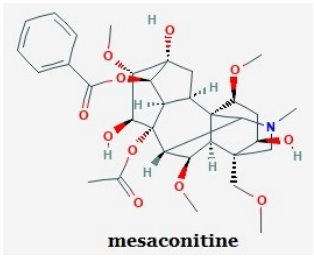

aconitic acid

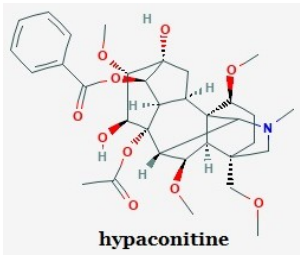

pseudaconine

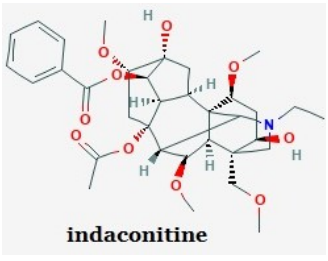

aconitine 1

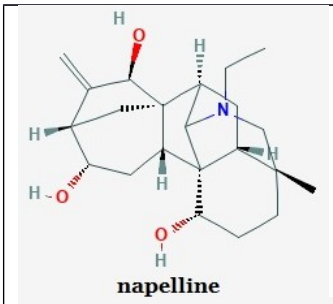

aconitine 2

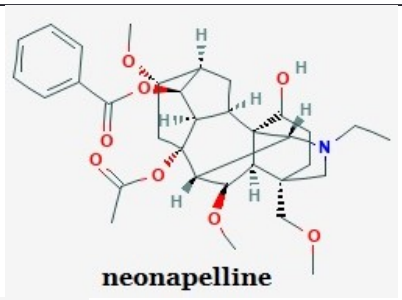

pseudaconitine

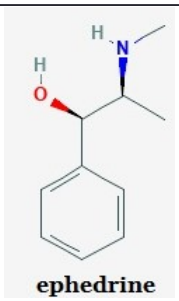

mesaconitine

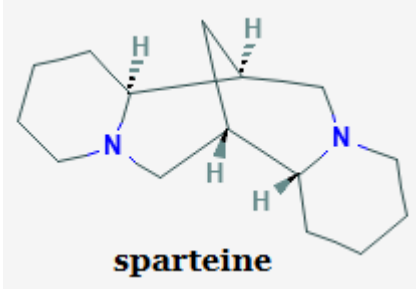

hypaconitine

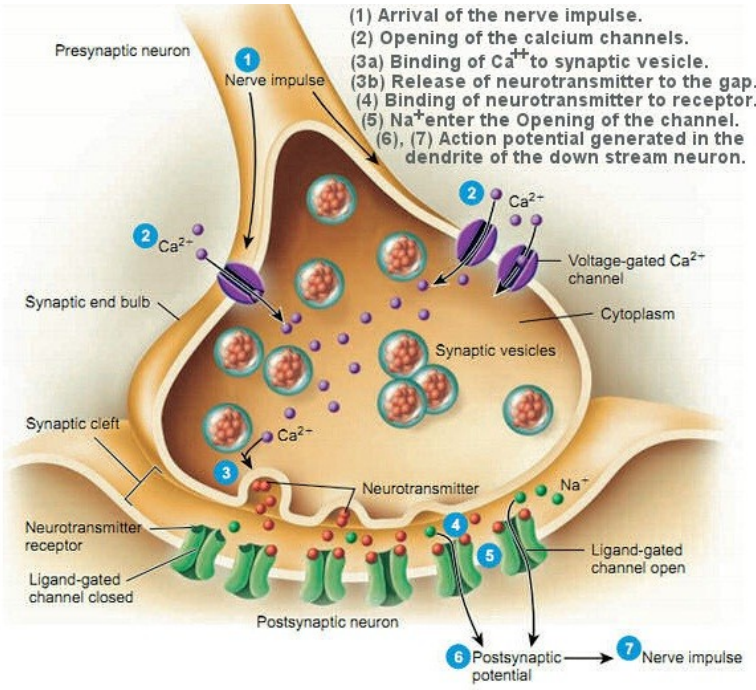

indaconitine


napelline


neonapelline


ephedrine


sparteine



Aconitine interacts with the voltage-gated sodium ion channels. Sodium ion channels are heteromeric glycoproteins bound in the membrane of cells in excitable tissue, such as muscles and neurons. They are highly selective for sodium ions, open rapidly to depolarize the membrane, and close to repolarize the membrane. Their conformation changes are essential for the generation of the action potential. When open, they permit ions to flow across the plasma membrane through their pores.

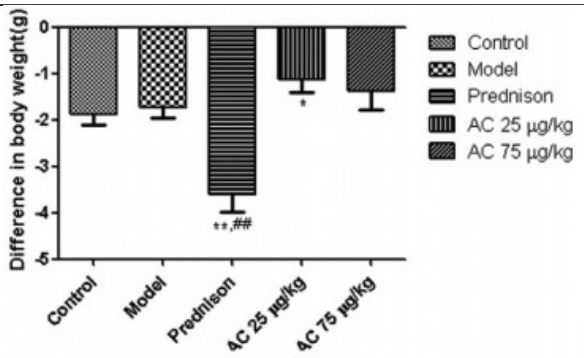
In the **muscles**,aconitine potentiates contractions. It increases the permeability of the smooth muscle membrane to sodium ions, increasing calcium ion availability and, therefore, muscular contraction.

In the **neurons**, aconitine depolarizes both the presynaptic and postsynaptic membranes by opening voltage-gated sodium ion channels. This change in voltage across the membrane leads to a higher concentration of calcium ions in the presynaptic axon terminal by opening voltage-gated calcium ion channels. The influx of calcium ions can stimulate or enhance neurotransmitter release. Both excitatory and inhibitory neurotransmitters may be released and involved in the activity of aconitine on the postsynaptic cell, in addition to its direct action on the postsynaptic voltage-gated sodium ion channels.

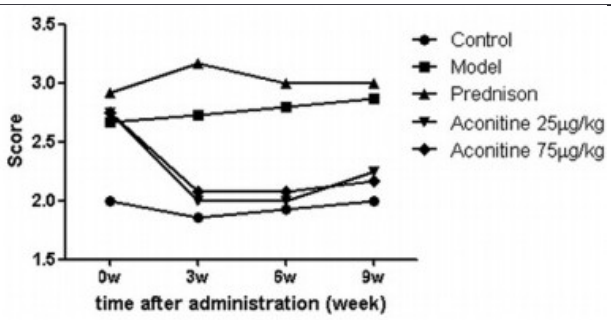
Copied from Fabrizio Viberti, Elisa Raveggi "Phytochemicals" 2014, treating the action mechanisms of the aconitins

Treatment of systemic lupus erythematosus (extract of cited article by Xiaodong Li *et al.*)

Background: Aconitum plants have been widely used in China for thousands of years. Recent evidences indicate that aconitine, the main active ingredient of Aconitum, has immunomodulatory properties that might be useful for treating autoimmune diseases, such as rheumatoid arthritis. In this study, we conducted a pilot study to explore the effect and mechanisms of aconitine on the treatment of systemic lupus erythematosus.
Methods: A pristane-induced murine model was used. The pristane-induced mice were treated with aconitine (25, 75 mg/ kg, 1 d, 1, po) for 9 weeks. Every three weeks, proteinuria was detected to monitor the kidney damage and blood was collected to measure serum levels of autoantibodies, besides the kidney pathological examination. The major B cell activating factor and major pro-inflammatory mediators, PGE2, IL-17a and IL-6, were also detected.
Results: We found that aconitine significantly improved the mouse health, decreased the elevated blood leukocyte counts, reduced the serum level of anti-double-stranded DNA (anti-dsDNA) antibody, greatly ameliorated renal histopathologic damage and reduced IgG deposit in glomerular. Furtherly, the levels of PGE2, IL-17a and IL-6, were found to have decreased in aconitine treated mice.
Conclusion: We have demonstrated that aconitine can inhibit the progression of disease and ameliorate the pathologic lesion of systemic lupus erythematosus.



The difference of body weight during the treatment.

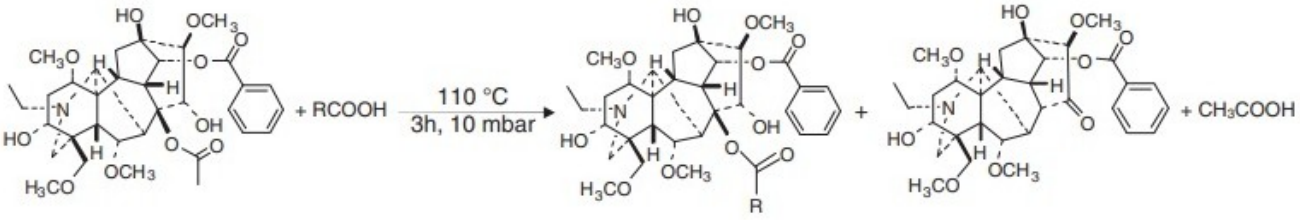


Time course of clinical characteristics and levels of proteinuria in BALB/c mice.

In conclusion, this pilot study for the first time has demonstrated that aconitine is effective for the treatment of SLE. Aconitine raised the body weight, improved health status, decreased the number of blood leucocytes, decreased the serum level of anti-dsDNA antibody, ameliorated the renal pathology, and thereby relieved bodies suffering damage. These effects of aconitine might be achieved in part by decreasing the inflammation in kidney and inhibiting B cells activation through suppressing the major pro-inflammation mediators, IL-17a, IL-6, and PGE2.

Painkiller and antirheumatic drugs after semisynthesis of aconitine with PUFAs

Processed aconite drugs are widely used in Eastern medicine as painkillers and antirheumatic agents. It is known that the traditional processing of aconite drugs increases the amount of lipoalkaloids. In order to obtain information about the pharmacological potential of these compounds, semisynthesis of 9 aconitine-derived lipo-alkaloids was carried out and their COX-1, COX-2 and LTB4 formation inhibitory activities were investigated. It was found that compounds esterified with unsaturated fatty acids demonstrated significant COX-2 inhibitory effects, while in the COX-1 assay only 14-benzoylaconine-8-O-eicosapentaenoate exerted remarkable activity. The inhibition of LTB4 formation was pronounced in cases of long chain fatty acid derivatives.



aconitine + unsaturated fatty acid → lipo-alkaloid of aconitine (R= fatty acid moiety) + pyroaconitine + acetic acid

COX-1, COX-2 and LTB_4 formation inhibitory activities of the lipo-alkaloids measured *in vitro*.

Compound	Inhibition % ± SD [a]		
	COX-1	COX-2	LTB_4 formation
14-benzoylaconine-8-*O*-laurate	−29.8 ± 5.7	−8.0 ± 5.6	33.5 ± 11.2
14-benzoylaconine-8-*O*-myristate	−25.3 ± 21.6	−4.0 ± 15.1	35.9 ± 9.8
14-benzoylaconine-8-*O*-stearate	−33.5 ± 39.3	−3.5 ± 10.2	52.5 ± 5.9
14-benzoylaconine-8-*O*-palmitoleate	−18.8 ± 8.7	17.1 ± 9.0	34.5 ± 6.5
14-benzoylaconine-8-*O*-oleate	−24.3 ± 17.0	15.3 ± 28.9	45.5 ± 4.6
14-benzoylaconine-8-*O*-α-linolenate	−5.9 ± 20.7	22.0 ± 7.8	48.0 ± 1.9
14-benzoylaconine-8-*O*-γ-linolenate	−11.8 ± 22.8	12.7 ± 4.9	34.7 ± 1.7
14-benzoylaconine-8-*O*-eicosapentaenoate	54.5 ± 24.4	66.1 ± 3.5	46.0 ± 3.3
14-benzoylaconine-8-*O*-docosahexaenoate	15.1 ± 24.2	40.2 ± 8.8	61.0 ± 7.9
Aconitine	−4.25 ± 4.64	9.96 ± 8.31	−0.39 ± 6.97

[a] Average of 2 tests in duplicate.

COX-1,2 = cyclooxygenase-1 or -2, resp. LTB4 = leukotriene B4, involved in the course of inflammations

Taken from cited article by Botond Borcsa *et al*.

Other Aconitum species with alkaloid content


A. lycoctonum


A. vulparis


A. toxicum


A. spicatum

A. kusnezoffii

TOXICOLOGY

The great majority of patients with aconite poisoning present with a combination of neurological, cardiovascular, and gastrointestinal features. The neurological features can be sensory (paresthesia and numbness of the face, perioral area, and the four limbs), motor (muscle weakness in the four limbs), or both. Paresthesia and numbness start in the face and perioral area and spread to the four limbs. Although the muscle weakness is generally mild (grade 5– power), tetraplegia with grades 0–1 power can occur. The cardiovascular features include hypotension, palpitations, chest pain, bradycardia, sinus tachycardia, ventricular ectopics, ventricular arrhythmias (tachycardia, torsade de points, and/or fibrillation), and junctional rhythm. Ventricular arrthythmias are most likely to occur in the first 24 h and in severe poisoning. Aconite-induced bidirectional tachycardia, atrioventricular dissociation, and pulmonary edema have also been reported. In contrast to unintentional poisoning due to processed aconite roots, ingestion of the wild plant results in even more severe cardiotoxicity because of the huge dose of Aconitum alkaloids involved. In response to the need for clinical or forensic toxicological investigations, chemical analyses for the Aconitum alkaloids and their metabolites in biological samples have been developed, using a combination of chromatographic and mass spectrometric techniques. Ideally, the assay should cover the key *Aconitum* alkaloids: aconitine, mesaconitine, and hypaconitine. **Source: Thomas Y. K. Chan** (cited below).

References / Chemistry

Botond Borcsa *et al.* "Semisynthesis and pharmacological investigation of lipo-alkaloids prepared from aconitine", Fitoterapia 82, 2011, p. 365–368

References / Pharmacology

Xiaodong Li *et al.* "Aconitine: A potential novel treatment for systemic lupus erythematosus", Journal of Pharmacological Sciences 133, 2017, p. 115-121

Toxicology

strongly poisonous +++

T.Y.K. Chan, Clinical Toxicology 47, 2009, p. 279–285