NEUTRALIZING THE VENOM pdf

1: Shake It Off Quotes by Sandra M. Michelle

Neutralizing Venom Prerequisites: Gorgoneion Benefit: Your snake hairs's can deal nonlethal damage without any any penalty and it bite now carry a powerful but slow acting neutralizing venom. On a successful bite, the venom inflict a -1 penalty to Strength and Dexterity for 1 minute, both the time and the penalty are cumulative with multiple bites.

It has been known for many years, that this spider can cause a tremendous amount of tissue damage that can lead to death. These spiders are usually identified by their markings on the dorsal side of their cephalothorax the upper part of the spiders body. The tell tale marking, is a black line which resembles the body of a violin, with the neck of the violin pointing to the rear of the spider, hence the name Fiddle-back Spider, Brown Fiddler or Violin Spider. The actual name of the genus and species is Loxosceles recluse, better known as the Brown Recluse Spider. Like many species of spiders, they like to reside in generally undisturbed habitats, of which you and your family and pets need to avoid. Try to be very careful around woodsheds, wood piles, cellars, closets, garages and under various structures. Their natural habitat can be in rotting tree bark, but apparently card board seems to attract them as well. In any event, be careful of these areas both for you, the members your family and your pets. The Brown Recluse Spider was native from the southern Midwest south to the Gulf of Mexico, but now its range has been has become quite extensive and even in Hawaii there is a spider that is the cousin of the Brown Recluse Spider. Interestingly enough, my head technical staff person sustained a bite from this spider as a child in Hawaii and nearly died. While practicing veterinary medicine at that time, in southern California, I only treated 4 to 5 Brown Recluse Spider bites, while Black Widow Spider bites were much more common at the time. Both types of venom from these spiders are toxic, but in my clinical experience, the Brown Recluse Spider bite causes much more tissue damage, at least in animals. Only a few years ago, the Brown Recluse Spider population has increased substantially. The first six months of this year while in practice, I have seen more than 25 Brown Recluse bites. It has reached such proportions in certain areas of Los Angeles County, that many land lords have posted pictures of this spider, to warn their new tenants of the inherent danger. I actually had one of these small posters brought to me by a pet owner. She had just rented an apartment in the Silver Lake district of Los Angeles, and this small poster had been placed on the entrance door to her apartment. Today, September 23, , I had two Recluse bites enter the veterinary hospital with major tissue damage. Often the lesions that the owner or veterinarian see primarily seem minor, but just within one to two days the tissue damage may become catastrophic. Often the bite will occur on the animal, where the animal sits or lays on the spider. Other times, the bite may occur near the eye, because spiders will go to the person or animal in order to drink the tears. In this case, even if asleep the victim may start to rub their eye and the spider will bite. In general, most spiders are thought to be poisonous, however many of them do not possess the ability to break the skin. Once bitten by the spider, a small area of redness may occur, leading to a swelling. The animal may bite at the sight and cause hair loss and may be assumed by the owner or veterinarian that this is an area of allergy often referred to as a "hotspot". The pet, whether a dog or cat, may not have ever had a "hotspot" or an area of allergic dermatitis before. Therefore, it is vitally important to ask the owner about the allergy history if any, regarding their pet and take into consideration the location of the allergy or "hotspot". Even with standard therapy, the swelling and redness may continue to grow in size. Soon the area may become very sensitive because the nerves are now inflamed. As the venom continues its tissue destruction, the toxins can start to cause systemic effects leading to neurological signs, vomiting and diarrhea. Various organs like the liver and kidney can be damaged. A simple blood test will determine if this is happening. Soon, the tissue at the bite site will begin to breakdown and die. As the cellular breakdown fluids are absorbed from the damaged tissue, shock and eventual death may occur. Clinically, treatment involves the use of steroids and antibiotics, but what is even more effective is the use of a special calcium montmorillonite paste on the bite sight. The dry premium calcium montmorillonite powder is mixed with just enough water to create a paste. The paste is applied to the bite site twice daily for 7 days. This premium calcium montmorillonite paste will not only draw out the toxins, but will also provide a natural antibiotic and will bind any venom remaining at the bite site. The natural micronutrients contained in this

premium calcium montmorillonite will also promote healing while supplying needed nutrients to the damaged skin itself. This premium calcium montmorillonite is also given orally, twice daily at the same time that the paste is applied to the bite site. For many thousands of years, healers have used this premium montmorillonite for this specific purpose. You can read about the history and value of the montmorillonite in treating Brown Recluse Spider bites, in a book written by Jason R. Eaton called "Upon a Clay Tablet". All of my treatments have been successful even in the face of a misdiagnosis using this special calcium montmorillonite. I know this has given me a successful tool to heal my patients after they have sustained a Brown Recluse bite and I would like to share this tool with you if you are interested. This is an 11 year old female, spayed, English Bulldog named Mishka. Her primary diagnosis was an allergic hotpot on her back and standard therapy was applied however after a few days the owner noticed the skin in the area was beginning to literally die. It was apparent that she had been bitten by a Brown Recluse Spider and the venom from the bite spread well over her shoulders. This bite occurred in Beverly Hills California and just one example of how this spider has now begun to inundate our cities. The lesion shows signs of healing and will continue to do so however the return of hair to the area may take up to a year if the hair follicles have not been permanently damaged. After 2 weeks of therapy.

NEUTRALIZING THE VENOM pdf

2: New nanogel neutralizes deadly snake venom

Shake It Off: Neutralizing the Venom of Poisonous People - Kindle edition by Sandra Michelle. Download it once and read it on your Kindle device, PC, phones or tablets. Use features like bookmarks, note taking and highlighting while reading Shake It Off: Neutralizing the Venom of Poisonous People.

February 13, , University of Texas at Austin Crazy ants on the right coat themselves with formic acid to neutralize the venom of the fire ant at left. Lawrence Gilbert, University of Texas-Austin. Invasive "crazy ants" are rapidly displacing fire ants in areas across the southeastern U. Known for their painful stings on humans and other animals, fire ants dominate most ant species by dabbing them with powerful, usually fatal venom. A topical insecticide, the venom is two to three times as toxic as DDT on a per weight basis. When a crazy ant is smeared with the venom, however, it begins an elaborate detoxification procedure, described for the first time in this study. The exposed crazy ant secretes formic acid from a specialized gland at the tip of its abdomen, transfers it to its mouth and then smears it on its body. In lab experiments, exposed crazy ants that were allowed to detoxify themselves had a 98 percent survival rate. This chemical counter-weapon makes crazy ants nearly invincible in skirmishes with fire ants over food resources and nesting sites. In this video, a fire ant dabs venom on an attacking crazy ant. The crazy ant coats itself with formic acid to neutralize the venom, a discovery made by University of Texas at Austin researchers. Ed LeBrun Last year, the researchers reported that where crazy ants take hold, the numbers and types of arthropodsâ€”insects, spiders, centipedes and crustaceansâ€”decrease, which is likely to have ripple effects on ecosystems by reducing food sources for birds, reptiles and other animals. LeBrun described watching a battle for food between red fire ants and crazy ants along the boundary between their two populations at a Texas field site. The fire ants found a dead cricket first and were guarding it in large numbers. Usually when fire ants amass around a food resource, other ants stay clear for fear of their deadly venom. Experiments back at the Brackenridge Field Laboratory in Austin helped him and his colleagues identify the detoxification agent and measure its effectiveness. To test the effectiveness of the formic acid, researchers sealed the glands of crazy ants with nail polish and put them in vials with red fire ants. Without the ability to apply the detoxifying compound to themselves, about half of the crazy ants dabbed with fire ant venom died. Among a control group of crazy ants with unsealed glands, on the other hand, 98 percent survived. Crazy ants and red fire ants are both native to northern Argentina and southern Brazil, where their ranges have overlapped for a very long time. The researchers suggest this newly discovered detoxification behavior is the result of an ancient evolutionary arms race. Apart from human intervention, said LeBrun, the only thing stopping the relentless march of the crazy ants will be natural factors, such as arid soils or severe freezes, that will be too harsh for them to survive. Like the fire ants before them, their range will ultimately be determined by geology and climate. There is one bright spot for humans. Unlike fire ants, colonies of crazy ants spread very slowlyâ€”about feet per year. The only way they can spread long distances is when transported by people in potted plants and recreational vehicles. LeBrun suggested that people not buy plants if they see ants nesting in the pots and that if they live in areas already invaded by crazy ants, they check for stowaways when they move homes or travel long distance. Consult with a pest control professional as to the best products to use. Not storing food in any vehicle parked in an infested area is also a good idea.

NEUTRALIZING THE VENOM pdf

3: Crazy ants dominate fire ants by neutralizing their venom

The neutralizing capacity of the blood serum of the non-venomous snake Clelia clelia against the hemorrhagic, edematous and myonecrotic effects of Bothrops asper venom in white mice was tested using in vitro preincubation experiments.

Medical uses[edit] The principle of antivenom is based on that of vaccines , developed by Edward Jenner ; however, instead of inducing immunity in the patient directly, it is induced in a host animal and the hyperimmunized serum is transfused into the patient. Antivenoms for therapeutic use are often preserved as freeze-dried ampoules , but some are available only in liquid form and must be kept refrigerated. They are not immediately inactivated by heat, however, so a minor gap in the cold chain is not disastrous. The majority of antivenoms including all snake antivenoms are administered intravenously; however, stonefish and redback spider antivenoms are given intramuscularly. The intramuscular route has been questioned in some situations as not uniformly effective. Thus, they should be administered as soon as possible after the venom has been injected, but are of some benefit as long as venom is present in the body. Since the advent of antivenoms, some bites which were previously invariably fatal have become only rarely fatal provided that the antivenom is administered soon enough. Antivenoms are purified by several processes but will still contain other serum proteins that can act as antigens. Some individuals may react to the antivenom with an immediate hypersensitivity reaction anaphylaxis or a delayed hypersensitivity serum sickness reaction and antivenom should, therefore, be used with caution. Although rare, severe hypersensitivity reactions including anaphylaxis to antivenin are possible. Although it is a popular myth that a person allergic to horses "cannot" be given antivenom, the side effects are manageable, and antivenom should be given as rapidly as the side effects can be managed. Efforts are being made to obtain approval for a coral snake antivenom produced in Mexico which would work against U. It is important to remember that respiratory paralysis in coral snakebite can occur suddenly, often up to 12 or more hours after the bite, so intubation and ventilation should be employed in anticipation of respiratory failure and not after it occurs, when it may be too late. As an alternative when conventional antivenom is not available, hospitals sometimes use an intravenous version of the antiparalytic drug neostigmine to delay the effects of neurotoxic envenomation through snakebite. Although individuals can vary in their physiopathological response and sensitivity to animal venoms, there is no natural immunity to them in humans. Some ophiophagic animals are immune to the venoms produced by some species of venomous snakes, by the presence of antihemorrhagic and antineurotoxic factors in their blood. According to Greek history , King Mithridates did this in order to protect himself against attempts of poisoning , therefore this procedure is often called mithridatization. However, unlike a vaccination against disease which must only produce a latent immunity that can be roused in case of infection , to neutralize a sudden and large dose of venom requires maintaining a high level of circulating antibody a hyperimmunized state , through repeated venom injections typically every 21 days. The long-term health effects of this process have not been studied. Further, cytotoxic venom components can cause pain and scarring at the immunization site. Finally, the resistance is specific to the particular venom used; maintaining resistance to a variety of venoms requires multiple monthly venom injections. Mithridatization has been tried with success in Australia and Brazil and total immunity has been achieved even to multiple bites of extremely venomous cobras and pit vipers. CSL has developed antivenoms for the redback spider, funnel-web spiders and all deadly Australian snakes. Because of this shortage, clinical researchers are looking at seeing if low doses can be as effective in severe neurotoxic snake envenoming.

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4: Are Rattlesnake Vaccines for Dogs Effective? â€“ Science-Based Medicine

In this video, a fire ant dabs venom on an attacking crazy ant. The crazy ant coats itself with formic acid to neutralize the venom, a discovery made by University of Texas at Austin researchers.

A company is now selling a rattlesnake venom vaccine. How much can we trust it when it comes to the health and safety of our dogs? Please welcome our newest guest blogger, veterinarian Greg Bishop! They think as soon as they step foot onto a trail, a horde of vicious, fanged-menaces are going to leap out and inject them with poison. However unlikely an encounter may be, some people are terrified of coming across a dangerous animal, and especially a snake with built-in maracas. They run the gamut from ridiculous to plausible, but one of the more interesting products available right now is a rattlesnake vaccine for dogs and horses, available from Red Rock Biologics. But is this vaccine a good idea? Read on pet lover, and we will hopefully shake out fact from fiction. While encounters are rare, I have to concede that we will occasionally come across a venomous little tube of muscle undulating across the trail. Fortunately deaths are pretty rare, but treatment is almost always necessary. If a dog is bitten by a rattlesnake, they need veterinary attention ASAP, no question. If the dose of venom is high enough, then the dog needs antivenom. Antivenom is essentially pre-made antibodies to a mixture of different rattlesnake venoms. Because rattlesnake venom is a complex mixture of proteins there are at least 50 different kinds , antibodies are a pretty good neutralizing agent. The antibodies are made by first injecting farm animals with small doses of venom, then collecting and purifying their blood for antibodies. These antibodies, which neutralize the venom, are injected into the bitten patient. Assuming the antivenom matches the injected venom, they should sop up all the toxin and allow it to be removed from the body safely except in rare cases of an allergic reaction to the antivenom. If there are any delays in treatment, the antivenom may not get in soon enough to prevent permanent damage. Obviously the best case is to not get bit in the first place and there is rattlesnake avoidance training , but as we all know, sometimes stuff happens. This finally gets me to the rattlesnake vaccine. And the idea behind it is interesting. So why not just have the dog make its own antivenom rather than rely on purified sheep blood? Maybe a little Old West analogy will help. The town is the body, and the bad guy is the venom. In theory, the antibodies townspeople will jump on the venom as soon as it hits the body. So we can basically immunize the dog to the venom, right? Yeah, kind of a tough sell, right? We know that it could, maybe, possibly, under-the-right-circumstances, work. We know that the vaccine does post wanted posters i. It all sounds good until we ask a few important questions. Ready for some monkey wrenches in the plan? There are about 40 different species of rattlesnake species and the vaccine only produces neutralizing antibodies to one of them for sure. Are you a good enough herpetologist to know which snake bit your pet? If they get taken down after a week of not seeing our villain, how riled up are the townspeople gonna be? As of right now, we have no idea, meaning we have no idea how long a dog might actually benefit from this vaccine, and when to give boosters. How many bad guys are gonna show up? Is there any evidence for this vaccine? A pretty recent study looked at how well this vaccine worked in mice when tested against a lethal dose of rattlesnake vaccine. The researchers injected mice with a lethal dose of venom from three species of rattlesnake after they had been vaccinated. Most of them died. Poor mice, they should have been born as ground squirrels. The good news is that some of the ones who got the vaccine actually lived, and the vaccinated mice lived significantly longer than unvaccinated mice. First of all, the vaccine did not work great for all three types of rattlesnakes tested. It worked a little bit for Western diamondback, maybe kinda a tiny bit for Northern Pacific rattlesnake, and not at all for South Pacific rattlesnake venom. So cross-protection was poor. The other big consideration with this study is that the exposure was controlled. Who knows how long the antibodies are hanging around at beneficial levels? This study shows the challenge in extrapolating data in the lab to predictions in the field. There is actually a pretty recent paper reviewing a few hundred cases of dogs who had been bitten by rattlesnakes and what factors were important in their outcomes. This is a very small sample but not bad for a veterinary study. However, there were a number of rattlesnake-vaccinated dogs in the cases. The only way I would consider using this product would be if rattlesnake avoidance was completely not possible, and even then, I would make sure the owner

knows that if their dog is bitten, they need to not expect the vaccine be helpful and get them a veterinarian with antivenom right away. To be fair, the manufacturer says as much in their brochure. They also responded to my phone call about duration of immunity by saying there are ongoing studies. The vaccine does appear safe, but so is homeopathy hmm , let me rethink that. So if the small but possible chance of benefit is worth the cost to the owner, it might make sense. As a fan of the SBM blog, he sees the enormous amount of bad science and information in the field of veterinary medicine as an opportunity, not a problem! But also a problem.

5: Brown Recluse Spider Bite - Dr. Alfred Plechner

antivenin (Crotalidae) polyvalent a serum containing specific venom-neutralizing globulins, produced by immunizing horses with venoms of the fer-de-lance and the western, eastern, and tropical rattlesnakes, used for treatment of envenomation by most pit vipers throughout the world.

P , Pin, India. Medicinal plants are vital sources of bioactive compounds that are useful for the treatment of patients with snake bites or are indirectly applicable for boosting the effects of conventional serum therapy. These plants are being used traditionally by local healers and tribes for the treatment of patients with snake bites and therefore can be used as an alternative against snake envenomation. Scientifically, using the secondary metabolites of plants to neutralize venom enzymes has an extra benefit of being based on traditional knowledge; also, the use of such metabolites for the treatment of patients with snake bites is cheaper and the treatment can be started sooner. All the available information on various secondary metabolites exhibiting venom neutralizing ability were collected via electronic search using Google books, Pubmed, SciFinder, Scirus, Google Scholar, and Web of Science and articles of peer-reviewed journals. Recent interest in different plant has focused on isolating and identifying of different phytoconstituents that exhibit Phospholipase A2 activity and other venom enzyme neutralizing ability. In this support convincing evidence in experimental animal models are available. The current review presents a compilation of important plant secondary metabolites that are effective against snake venom due to enzyme neutralization. Keywords anti-venom, medicinal plants, plant constituents, snake venom Open Access This is an Open-Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License http: Introduction Snake envenomation is a serious medical problem. Snake venoms constitute a rich source of phospholipase A2 PLA2 , B, C, and D enzymes, haemorrhigins, transaminase, hyaluronidase, phosphodiesterase, acetyl cholinesterase, cytolytic and necrotic toxins, etc. Cardiotoxicity, myotoxicity, pre- or post-synaptic neurotoxicity, edema, hemolysis, hypotension, etc. Recent findings showed that 2. In India, approximately 35, - 50, deaths due to snake bite are thought to occur every year [4], and about 5. Recently, increased attention has been given to, and much interest has been shown in, the use of traditional medicines. Snake bites require emergent medical care such as serotherapy, which is the only scientifically recognized treatment for this envenomation and in which anti-venom serum made from the venom of a snake is used. The first anti-venom against the Indian Cobra was developed in [6]. However, that anti-venom has certain drawbacks: Even now, in most of the rural and tribal areas, individuals depend on native herbal medicine systems for their major health care, including treatment for snake bites. Medicinal plants are a source of bioactive pharmacological compounds that can be used directly in the treatment of patients with snake bites or indirectly as supplements to anti-venom immunotherapy. Therefore, medicinal plant extracts can be used as an effective alternative treatment, either alone where antivenom immunotherapy is not carried out promptly or as beneficial supplements [8 - 10]. Many plant constituents are used in traditional medicine and act against the various effects induced by snake bites. The toxicity caused by the proteins and the enzymes present in snake venom can be neutralized by the natural inhibitors present in these plants [2]. These natural components, such as phenolic compounds, alkaloids, acids, proteins, etc. This review summarizes the different reported effects and characteristics of these natural plant components against snake venom. Alkaloids Atropine, an alkaloid found in the Solanacae family, inhibits the venoms of the black and the green mamba: Dendroaspis angusticeps and D. It is a cholinergic blocker that is thought to decrease the effects of the neurotransmitter released at the cholinergic nerve terminals by the above-mentioned snake venoms [1]. Another alkaloid, aristolochic acid AA 8-methoxynitrophenanthro 3, 4 -d- 1,3-dioxolecarboxylic acid , is found in Aristolochia radix. The enzymatic and pharmacological activities of a basic PLA2 from Vipera russelli venom is inhibited by this alkaloid. However, the disadvantage of AA is that it only restricts the edema-inducing activity; it has no role in recovery [12]. MMV methoxymethyl voachalotine is extracted from the Tabernaemontana catharinensis plant and inhibits the lethal effect of the crotoxin found in the venom of the Crotalus durissus terrificus snake [13]. Acids Aristolochic acid is mostly found in Aristolochia sp. Organic nitrocompounds, such as aristolochic

acids and aristolactams, which contain a phenanthrene nucleus, are produced in the roots of the Aristolochia sp. The most abundant aristolochic acid I interacts with the edema-causing enzymes of Indian viperidae [15]. Aristolochic acid acts as a noncompetitive inhibitor of the enzyme by forming a 1: This inhibitor recognizes subtle differences occuring in the isoforms of PLA2 [15]. The methoxy and hydroxy functional groups of this compound neutralize the lethal and hemorrhagic activities of the venom [1]. Rosmarinic acid RA , which is an ester of caffeic acid and 3, 4-dihydroxyphenyllactic acid [2-O-cafeoil 3, 4-dihydroxyphenyl - R-lactic], was reported for the first time in Cordia verbenacea. It has anti-inflammatory and antimyotoxic properties against snake venoms and isolated toxins. Circular dichroism results reflect no significant conformation changes between rosmarinic acid and PLA2 [16]. RA from the methanolic extract of Argusia or Messerschmidia or Tournefortia argentea Boraginaceae was reported to inhibit the hemorrhagic activities of the crude venoms of Trimeresurus flavoviridis, Crotalus atrox C. Steroids Steroids form complexes which are held together by van der Waals and hydrophobic forces [7 , 14]. Sitosterol and stigmasterol are extracted from plants like E. Cholesterol is another steroid. It is present in onion skins and in the roots of Ehretia buxifolia Roxb. Flavanoids Flavanoids are one of the foremost plant components that work against PLA2, lipooxygenase, etc. They possess anti-inflammatory, anti-hepato-toxic, anti-hypertensive, anti-arrhythmic, hypocholesterolemic, anti-allergic, antitumor, and enzyme-inhibiting properties. Other examples of flavonoids are primetin 5, 8-dihydroxyflavone , a constituent of Primula denticulata, and quercetin, a potent inhibitor of lipooxygenase, as well as hesperidin, isoquercitrin, luteolin, kaempferol, and apigenin [2 , 7 , 14]. Morelloflavone, a flavanone- C-3 C -8" -flavone biflavonoid, is isolated from Garcinia madruno extracts and has been reported to inhibit the enzymatic, myotoxic, edema-forming, and anticoagulant activities induced by C. Coumestans Among the coumestans, the most important is wedelolactone, which is active against South American crotalid venoms from Crotalus durissus terrificus, B. Wedelolactone, which is isolated from Eclipta prostrata, selectively inhibits 5-lipoxygenase. Wedelolactone also exerts several pharmacological actions: Demethylwedelolactone from the same plant has also been identified to have antihepato-toxic constituents [14]. It mimics wedelolactone by showing antimyotoxic activity and by inhibiting the edema and hemorrhage activities and the cardiotoxicity of Bothrops jararacussu crude venom [3 , 23]. The genus Erythrina consists of many other bioactive pterocarpans, among which the bark of E. Edunol, another pterocarpans, which is isolated from the root of the Harpalyce brasiliana plant found in Northeast Brazil and the Mexican antiophidic plant Brongniartia podalyrioides, has been shown to neutralize the lethal actions of the Bothrops jararacussu crude venom and the Bothrops atrox venom, respectively. This compound has also been obtained via chemical synthesis, and the synthesized compound has shown anti-myotoxic, anti-proteolytic, and anti PLA2 activities [3 , 14 , 24]. It is an active component containing anti-proteolytic and anti-hemorrhagic properties against snake venoms, especially Bothrops snake venoms. This inhibitor also neutralizes the hemorrhagic, fibrinogenolytic, and caseinolytic activities of class P-I and III metalloproteinases isolated from B. Among triterpenoids, the pentacyclic triterpenes betulin and betulinic acid are the most common triterpenes, and they are extracted from Betula alba and show anti-PLA2 activity. Betulinic acid is a better inhibitor of PLA2. Bredemeyeroside B and Bredemeyeroside D are triterpenoid saponins; they are isolated from Bredemeyera floribunda and show anti-lethality activity against Bothrops jararaca snake venom [7]. Another natural triterpenoid saponin, which is extracted from the root of Glycyrrhiza glabra licorice , is Glycyrrhizin, which has anti-inflammatory activity [26]. A triterpenoid 1-hydroxytetratriacontaneone C34H68O2 is isolated from the methanolic leaf extract of Leucas aspera Linn and has been shown to significantly neutralize the spectacled cobra Naja naja naja venom, which has been shown to induce lethal activity in a mouse model [27]. The di- and triterpenoids annonalide, humirianthol, acrenol, and lupeol [28] are found in Humirianthera ampla, a member of the Icacinaceae family; among these, only lupeol partially inhibits the hemorrhage, edema, pro-coagulant, and myotoxic activities caused by Bothrops venom [18]. Lupeol acetate, which is isolated from Indian sarsaparilla Hemidesmus indicus L. Asclepiadaceae , is active against Daboia russelli venom-induced lethality, as well as hemorrhage, defibrinogenation, edema, and PLA2 activities; it also neutralizes the lethality, cardiotoxicity, neurotoxicity, and respiratory changes induced by Naja kaouthia venom [3]. Arjunolic acid, another pentacyclic triterpene, is found in the root extract of Combretum

leprosum and has been shown to reduce the edema, skin hemorrhage, and pro-coagulating effects of Bothrops jararacussu snake venom [29]. Some Miscellaneous Compounds Among tannins, persimmon, tannin from the fruit of Diospyros kaki, is active against Laticauda semifasciata and Trimeresurus flavoviridis venoms. Ellagic acid, a tannin isolated from Casearia sylvestris, inhibits the venoms of the Bothrops genus [1 , 30] Ellagic acid has been reported to be the major constituent in Euphorbia hirta, whose methanolic extract inhibits the effects of Naja naja venom. Ar-turmerone, a phenolic compound isolated from the Curcuma longa Zingiberaceae plant, neutralizes the hemorrhaging and lethality caused by B. Conclusion The evidence necessary to establish a scientific basis for the use of traditional plants and their constituents to counter the effects of snake venom exists. Thus, use of herbal and medicinal plants and the constituents of those plants with anti-venom activity to treat patients with snake bites may be thought of as a well-established, very effective substitute for conventional serum therapy for snakebite envenomation. However, most of the research on herbal and medicinal plants has been on plants from different regions; thus, the scientific community must find plant constituents that having anti-venom properties.

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6: How to Neutralize Bee and Wasp Stings | Sciencing

A new development in the competition between two ants invading the southern United States: tawny crazy ants (Nylanderia fulva) can detoxify the venom of the red imported fire ant (Solenopsis invicta).

This article has been cited by other articles in PMC. Abstract Natural inhibitors occupy an important place in the potential to neutralize the toxic effects caused by snake venom proteins and enzymes. It has been well recognized for several years that animal sera, some of the plant and marine extracts are the most potent in neutralizing snake venom phospholipase A2 svPLA2. The implication of this review to update the latest research work which has been accomplished with svPLA2 inhibitors from various natural sources like animal, marine organisms presents a compilation of research in this field over the past decade and revisiting the previous research report including those found in plants. Besides marine natural products that inhibit PLA2 are manoalide and its derivatives such as scalaradial and related compounds, pseudopterosins and vidalols, tetracylne from synthetic chemicals etc. There is an overview of the role of PLA2 in inflammation that provides a rationale for seeking inhibitors of PLA2 as anti-inflammatory agents. However, more studies should be considered to evaluate antivenom efficiency of sera and other agents against a variety of snake venoms found in various parts of the world. The implications of these new groups of svPLA2 toxin inhibitors in the context of our current understanding of snake biology as well as in the development of new novel antivenoms therapeutics agents in the efficient treatment of snake envenomations are discussed. Inhibitors, Phospholipase A2, Snake venom phospholipase A2, Envenomation, Inflammation Background Snake envenomation is a serious medical problem, especially in the farms where snakes are abundant [1]. Snake venoms constitute a rich source of phospholipase A2 PLA2 enzymes, which show remarkable functional diversity. Snake venom phospholipase A2 svPLA2 can induce several additional effects such as cardiotoxicity, myotoxicity, pre or postsynaptic neurotoxicity, edema, hemolysis, hypotension, convulsion, platelet aggregation inhibition and anticoagulation [3 â€” 5]. Their catalytic activity upon cell membranes of specific tissues suggests an important role of these enzymes in venoms toxicity. Since then, the isoforms of basic myotoxic PLA2s were isolated from Bothrops snakes and classified into group II, where the Asp residue was replaced by Lys, resulting thus two classes of this enzyme: Previously, myonecrotic venom components were extensively studied. Toxicity and pharmacological effects differ in acidic isoforms. For example, the acidic PLA2 isolated from Lachesis muta venom is myonecrotic, proteolytic, anticoagulant and platelet aggregation inhibitor. Another myotoxic PLA2 from the same venom did not show anticoagulant or lethal activity. It has been suggested that PLA2s represent a class of versatile enzymes and, as multifunctional proteins; they are extremely relevant as mediators of several inflammatory diseases and promising agents for use in biotechnological areas [20 â€” 21]. An increasing search for use of these enzymes is therefore not surprising, including their general anesthetic action, treatment of rheumatoid arthritis, bactericidal action, novel class of antiparasitary agents, HIV inhibitors and others [22 â€” 26]. In this review, we broadly discuss the implications of the PLA2 inhibitor groups of plants, marine organisms serve as sources of compounds on current understanding of snake biology, as well as in the development of new therapeutic drugs for treatment of snake envenomations. Venom neutralization by bio-active compounds from plant a Neutralization potential of crude mixture of plants: Many plants are used in traditional medicine as active agents against various effects induced by snakebite [27]. Viperidae snakes Daboia russelli russelli are well known for sever local effects and these effects commonly treated with plant extracts without any scientific validation in triabl areas, India [28]. There are few survey reports that reveal the practice of herbal medicine by either folk or indigenous communities [29 â€” 31]. However, in most cases the efficacy of this traditional treatment regimen is unproven. Thus, the study of herbal antidotes against snake venom is of great importance in the management of snakebite. Recently, various research groups actively enganged for antivenom research by using diversed crude extracts and elucidated active compounds from various plants sources [27 , 32 â€” 34]. In addition, their natural PLA2 inhibitors also play an important role in some traditional medicines used for immune support, such as the ashwaganda plant Withania somnifera used in Ayurvedic medicine. Aqueous

extracts of this plant have been reported to neutralize venom of the Indian speckled cobra -Naja naja [35] another report, ethanolic seed extract of Strychnas nux-vomica also showed antisnake venom activity [36]. Edema, hemorrhage and myonecrotic activities were also neutralized effectively [28]. Aqueous root extract of Mimosa pudica inhibited the hyaluronidase and protease activities of Indian snake Naja naja, Vipera russelli and Echis carinatus venoms by dose dependant manner [38]. The ethanol leaf extract and essential oil of Nectandra angustifolia was the most active and inhibited both venom activities hemolytic and coagulant , while the oil was only active on the coagulant activity [39]. Methanol extract of fresh leaves Camellina sinensis L. Alam et al, [41] also reported that the isolation, purification and partial characterization of viper venom inhibiting factor from the root extract of the Indian medicinal plant sarsaparilla Hemidesmus indicus R. Viper venom-induced inflammation and inhibition of free radical formation by pure compound 2-hydroxymethoxy benzoic acid isolated and purified from anantamul Hemidesmus indicus R. BR root extract [42]. This survey covers 72 medicinal plants belonging to 53 families that are used for the treatment of snakebite in a traditional way. Traditional approach was evaluated scientifically with some selected plant extracts 7. Tested fractions Aristolochia indica, Hemidesmus indicus, Gloriosa superba, Strychnos nuxvomica, Eclipta prostrata, and Andrographis paniculata showed potent neutralizing effect against the venom. Compared to the extracts, administration of purified fractions was more effective in increasing the body weight. The purified fractions 2. The isolated fractions effectively inhibited the toxic effect of snake venoms in vitro than in vivo. The above observations confirmed the protective activity of plants - Aristolochia indica, Hemidesmus indicus, Gloriosa superba, Strychnos nux-vomica, Eclipta prostrata, and Andrographis paniculata against the lethal action of snake venom [33]. Several plants are used in traditional medicine as active agents against various effects induced by snakebite [27 , 32]. Folk medicine and its isolated constituents recommended as snake venom antidotes for the protection against Jararaca venom [43] for i. Furthermore, previoulsy we reported [33] hydrocarbones such as 2, 4 dimethyl hexane, 2 methylnonane, 2, 6 dimethyl heptane obtained from traditional medicinal plants Tragia involucrata Euphorbiaceae member showed effective venom and PLA2 neutralisation in mice Figure 1A. PLA2 inhibitors have also been isolated from plants such as Horsfieldia amygdaline [46].

7: Snake antivenom - Wikipedia

Snake Venom and Bites Throughout the world, it is estimated there are a minimum of 1 to 2 million annual snakebite incidents (this number includes bites by non-venomous species). Of that number, roughly 50, to , bites result in fatalities worldwide.

8: Neutralizing Venom (e Feat) - Dungeons and Dragons Wiki

Natural inhibitors occupy an important place in the potential to neutralize the toxic effects caused by snake venom proteins and enzymes. It has been well recognized for several years that animal sera, some of the plant and marine extracts are the most potent in neutralizing snake venom phospholipase A 2 (svPLA 2).

9: Shake It Off: Neutralizing the Venom of Poisonous People by Sandra M. Michelle

Malayan pit viper (Calloselasma rhodostoma) envenomation is a major health problem in South East Asia. During envenomation, venom components mainly affect the hemostatic system. During envenomation, venom components mainly affect the hemostatic system.

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