

# Prevention of Anthrax Epidemic in sheep and goats with *Anthracinum 200*

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## Abstract

**Objective:** To study the effect of *Anthracinum CH 200* to prevent anthrax in sheep and goats in less and highly endemic villages of Kadapa district, Andhra Pradesh, India was studied. **Materials and Methods:** This study was conducted in 159,250 sheep and goats, in anthrax-endemic Kadapa district in India, from 2003 to 2008, consecutively covering 1 endemic and 17 less endemic villages. Fifteen millilitres of *Anthracinum 200* dilution was mixed thoroughly with 1 L of 2.5% albendazole suspension and drenched orally either with a drenching gun or with a 10-ml syringe, in a single bolus of 10 ml for adults and 5 ml for young ones. **Results:** All the sheep and goats were protected from Anthrax with a single dose of *Anthracinum CH 200* both in non-endemic villages. The ratio of cost of vaccine to cost of Homoeopathic Prophylactic was worked out to be 5.47:1. **Conclusions:** Homoeopathy is very effective in preventing the anthrax in sheep and goats at a very cheap price and is very safe and has a rapid response.

**Keywords:** Anthrax, Epidemics, Homeopathy, Prevention, Albendazole, *Anthracinum CH 200*

## INTRODUCTION

Anthrax, a highly infectious and fatal disease of mammals and humans, is caused by a relatively large, spore-forming rectangular-shaped bacterium called *Bacillus anthracis*. Anthrax is most common in wild and domestic herbivores (e.g., cattle, sheep, goats, camels and antelopes) but can also be seen in people exposed to tissue from infected animals to contaminated animal products.<sup>[1]</sup>

An anthrax epidemic occurs round the year and through out the globe, but the prevalence is high in the summer months (Anthrax years) and anthrax spore viability was observed in pond water for 18 years, in moist and dry soils for 33 years and in sealed soil for 60 years.<sup>[2,3]</sup>

It has been observed that high pH and high contents of calcium in the soil contribute to maintain the spores viable for a longer time. These soil spores cause new infections when they come into contact with a suitable new host.<sup>[4,5]</sup>

Anthrax outbreaks in animals in nearly 200 countries were recorded by the World Anthrax Data Site, the World Health Organization Collaborating Centre for Remote Sensing and Geographic Information Systems for Public Health.<sup>[6,7]</sup>

Signs exhibited by affected animals are sudden death and are by far the most common sign. Most of the affected animals showed trembling, high temperature, difficulty in breathing and convulsions before death. This usually occurs over a period of 24 h. After death, blood may not clot, resulting in a small amount of bloody discharge from the nose, mouth and anus.

An outbreak of anthrax was reported in 135 goats in 2005, 251 ones in 2006 and 216 ones in 2007 in Andhra Pradesh, in the same state 51 cases were reported in human beings in 2009 and 11 deaths occurred after consuming anthrax-affected meat.<sup>[7]</sup>

The disease is enzootic in India. The disease is endemic in Tamil Nadu, Karnataka, Andhra Pradesh, Odisha, West Bengal, Maharashtra and Jammu and Kashmir. The outbreaks in small ruminants, especially sheep, are maximally recorded from Andhra Pradesh and Karnataka, which might be due to high sheep population in those states and their migratory patterns.<sup>[8]</sup> Anthrax is endemic in Kadapa District of Andhra Pradesh

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state. Although Kadapa district was declared endemic, certain villages are highly endemic and some are less endemic due to occasional occurrence of anthrax. The degree of endemicity depends, in particular, on preventive measures such as timely vaccinations and proper disposal of dead animals. An endemic area becomes less or severe endemic depending on the adoption of the above two major measures. Once the symptoms are observed in sheep and goats, no system of medicine can save them from death since the disease is highly pathogenic and rapid in the course.

The shepherds approached for treatment for. The affected sheep and goats from 2003 to 2008, brought to Sreepathi Veterinary Services, Kadapa, were included in the study. No vaccinations and allopathic treatments were given. An attempt was made to control the epidemic only with Homoeopathy. It was gathered from the shepherds of endemic and less endemic anthrax belt that they regularly deworm their flock once in 3 months, either with albendazole or a combination of albendazole with oxcylozanide or rafoxanide to reduce worm burden and to fatten the stock.

In the present study, an attempt is made to find out the preventive efficacy of homoeopathic medicine Anthracinum CH200 *Anthracinum* CH 200, as a solitary oral dose, immediately drenched, in the beginning of outbreak in less endemic villages and well before the expected time of occurrence of outbreak in highly endemic ones, instead of vaccinating with anthrax spore vaccine.

The rubrics of the homoeopathic nosode preparation of *Anthracinum* CH 200 match most of the symptoms of anthrax disease.<sup>[9]</sup> *Anthracinum* CH 200 is an alcoholic extract of the anthrax toxin prepared from the spleens of affected animals died of anthrax.<sup>[10]</sup>

## MATERIALS AND METHODS

Materials Albendazole 2.5% suspension (Cureben<sup>®</sup>, Cure Vet Formulations Hyderabad) and *Anthracinum* CH 200 (Ramakrishna Homeo Stores [P] Ltd., Hyderabad) were purchased yearly and tried in the present study.

### Homoeopathic medication

Since pills drops (dilutions) or pills (triturations) are not practicable to medicate the large population of sheep, a stable, easily adoptable and known vehicle in the form of albendazole (Cureben) was selected. Fifteen millilitres of *Anthracinum* 200 was mixed with 1 L of Cureben<sup>®</sup> and the contents were shaken thoroughly. 10 ml of this solution was administered to sheep and goats and 5 ml to lamb and kids (6 months), either with an automatic drencher gun or with 10 ml disposable syringe, as a single dose.<sup>[11]</sup>

### Treatment protocol

Treatment protocol: Two preventive trials were conducted on sheep and goats, brought for veterinary advice, to Sreepathi Veterinary Services, Kadapa, designated as Protocol 1 and Protocol 2.

### Protocol 1

A total of 65,700 sheep brought with anthrax symptoms from 17 non endemic villages, occurred for the first time, during 2003–2008, were included in the study. The shepherds approached for advice, as and when their flock was attacked with anthrax. The shepherds were supplied anthracinum to be dosed immediately to livestock at risk orally to control the outbreak [Table 1].

### Protocol -2

A total of 93,550 sheep from highly endemic village, Pagadalapalli, from 2003 to 2008, were included this pilot study [Tables 2 and 3]. In the Pagadalapalli village, the shepherds encountered the anthrax outbreaks regularly in every year since 2001 [Table 2]. The shepherds used to contain the epidemic with spore vaccine, but with limited success. After witnessing the benefit of Homoeopathy, they embraced the minimal dose therapy.

They drenched their sheep and goats with *Anthracinum* CH 200 twice mixed with 2.5% albendazole, one during the month of December (Winter Season) and the second during the month of June (Summer Season) of every year, from 2003 to 2008. The number of sheep and goats medicated was 93,550 with *Anthracinum* CH 200 [Table 2]. During the period, sheep and goats were not vaccinated against anthrax. The variations in the population during 2003–2008 were due to the sale of adults and young stock to clear their loans and to run their families.

## RESULT AND DISCUSSION

*Anthracinum* CH 200 mixed very well with 2.5% of albendazole. Hence, the administration of the single dose with much less effort to a big flock was possible. *Anthracinum* 200 mixed with albendazole could prevent anthrax in sheep in non-endemic or endemic belts effectively.

The shepherds are in the habit of getting rid of gastrointestinal worms, once in 3 months, every year, regularly with albendazole. In spite of adopting this type of extension activity, they encountered anthrax outbreaks, both in endemic and in non endemic areas.

The combination perhaps acted synergistically, because albendazole is a broad-spectrum dewormer which will eliminate harmful worms of the gastrointestinal tract and reduce stress and improve the nutritional status and also act as a vehicle to carry and deliver the *Anthracinum* CH 200 to the sheep.<sup>[12]</sup> In endemic areas, with sudden and severe outbreaks, the task of prevention is a formidable one. Conducting simple vaccination will be of no use, and early treatment and vigorous implementation of a preventive program is essential to reduce losses among livestock. Livestock at risk should be immediately treated with a long-acting antibiotic to stop all potential incubating infections. This is followed by vaccination 7–10 days after antibiotic treatment. Any animals becoming sick after

**Table 1: (Protocol: 1) Homoeopathic treatment in less endemic areas (new villages)**

Year	Number of villages	Number of sheep	Deaths before treatment	Annual percentage of death
2003	3	10,800	11	0.10
2004	2	9000	9	0.10
2005	3	11,100	22	0.19
2006	4	13,250	26	0.19
2007	4	19,700	39	0.19
2008	1	1850	2	0.10
Total	17	65,700	109	0.16

**Table 2: (Protocol: 2) Mortality rate in sheep in highly endemic Pagadalapalli**

Season	2001 (population)	Deaths/mortality percentage	2002 (population)	Deaths (mortality percentage)
Winter	8003	56 (0.69)	7840	70 (0.89)
Summer	8621	64 (0.74)	7900	87 (1.10)

**Table 3: (Protocol: 2) Homoeopathic treatment in sheep in highly endemic Pagadalapalli**

Sl. Number	Year	Winter season (December)	Summer season (June)	Death during oral administration
1	2003	7500	8000	No death was reported from 2003 to 2017
2	2004	7550	7800	
3	2005	7600	7700	
4	2006	7900	8000	
5	2007	7450	7660	
6	2008	7850	8540	
	Total	45,850	47,700	

initial treatment and/or vaccination should be retreated immediately and revaccinated a month later. Simultaneous use of antibiotics and vaccine is inappropriate, because available commercial vaccines for animals are live vaccines.<sup>[13]</sup>

#### Computation of cost/benefit ratio of spore vaccine and Homeopathic nosode.

1. Cost of vaccine per dose (primary) Rs 2.00
2. GST @ 12% Rs 0.24
3. Cost of booster dose with tax Rs 2.24
4. Vaccinator charges Rs 2.00
5. Transport and cold chain charges Rs 2.00
6. The total cost of allopathic vaccination Rs. 8.48
7. The cost of albendazole (cureben) per litre. Rs. 150
8. The cost of 450 ml of *Anthracinum* Rs. 300
9. The cost of single dose of *Anthracinum* mixed with albendazole Rs. 1.55/-
10. The cost of vaccine/cost of anthracinum nosode, Rs 5.47:1.

Source & reference -anthrax vaccines supplied by AH Department of Andhra Pradesh and Karnataka).

The vaccine contains only culture with spores whereas *Anthracinum CH 200* is an alcoholic extract of anthrax-affected sheep spleen.<sup>[10]</sup> It can be assumed that the Homoeopathy medicine which is prepared from alcoholic extracts of anthrax

sheep spleen may not only contain spores but also lethal and antigenic toxins.<sup>[14]</sup> In-depth research is to be conducted in this direction to find out the efficacy of Homoeopathy over vaccination.<sup>[15]</sup>

## CONCLUSIONS

In Pagadalapalli, during the period and after medication of homoeopathic administration, not even a single incidence of anthrax was reported till date. No sheep and goat succumbed to anthrax. Anthrax epidemic was almost eliminated. Containment of epidemic with vaccination is time-consuming. With Homoeopathy, prevention is cheap and rapid. The alkaline pH of soil, high moisture and organic contents and ambient temperature more than 15°C are the deciding factors for triggering large anthrax outbreaks and can forewarn the infection risk of anthrax in a particular area and so the occurrence of epidemic can be predicted and prevented with *Anthracinum CH 200*.<sup>[14]</sup>

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## Conflicts of interest

None declared.

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## एंथ्रासिनम सीएच 200 के साथ भेड़ और बकरियों में एंथ्रेक्स महामारी की रोकथाम

### सार

**उद्देश्य:** कड़ाप जिले के कम और अत्याधिक स्थानिक गावों में, भेड़ और बकरियों में एंथ्रेक्स को रोकने के लिए एंथ्रासिनम सीएच 200 के प्रभाव का अध्ययन किया गया।

**सामग्री और विधि:** यह अध्ययन वर्ष 2003 से 2008 तक, एंथ्रेक्स स्थानिक भारत के कड़ाप जिले के 1,59,250 भेड़ और बकरियों पर किया गया, जिसमें क्रमानुसार 1 स्थानिक और 17 कम स्थानिक गावों को शामिल किया गया। एंथ्रासिनम 200 घोल (डिल्यूशन) को 1 लीटर 2.5 प्रतिशत अल्बेंडाजोल ससपेंशन के साथ पूर्णतया मिलाया गया तथा व्यस्क पशु को 10 एमएल और बच्चों को 5 एमएल की मात्रा, ड्रेन्चिंग गन या 10 एमएल सिरिज की सहायता से मौखिक रूप से दी गयी।

**परिणाम:** कम और स्थानिक गावों में सभी भेड़ों और बकरियों को एंथ्रासिनम सीएच 200 की एक खुराक द्वारा बचा लिया गया। टीके (वैक्सीन) की लागत/एचपी की लागत 1:57 पता लगायी गयी।

**निष्कर्ष:** होम्योपैथिक औषधि बहुत सस्ती, सुरक्षित और तीव्र प्रभावी होते हुए भेड़ और बकरियों में एंथ्रेक्स की रोकथाम और इलाज में बहुत प्रभावी है।

## Prophylaxe von Milzbrand bei Schafen und Ziegen mit Anthracinum C 200

**Hintergrund:** Es wurde die prophylaktische Wirkung von Anthracinum C 200 bei Milzbrand bei Schafen und Ziegen in Dörfern mit niedriger und hoher Endemierate des Kadapadistrikt untersucht.

**Methoden und Materialien:** Diese Untersuchung wurde in den Jahren 2003 bis 2008 an 1,59.250 Schafen und Ziegen im Kadapadistrikt, Indien (in einem endemischen Dorf und 17 weniger endemische Dörfern), in dem endemisch Milzbrand vorkommt, durchgeführt. 15 ml Anthracinum C 200 wurden mit 1 Liter 2,5% Albendazol Suspension gut vermischt. Erwachsenen Tieren wurden 10 ml und jungen 5 ml mit einer 10 ml Spritze, in einem einzigen Bolus mit einer Wasserpistole oral verabreicht.

**Ergebnisse:** Alle Schafe und Ziegen wurden in endemischen und weniger endemischen Dörfern mit einer einzigen Dosis Anthracinum C 200 geschützt. Die Kosten für den Impfstoff / für HP wurden mit 1:1,57 berechnet.

**Fazit:** Homöopathie ist hoch effizient in Punkto Prävention und Heilung von Milzbrand bei Schafen und Ziegen und zwar kostengünstig, sicher und mit rascher Reaktion.



## Prevención de una epidemia de ántrax en ovejas y cabras con Anthracinum CH 200

### Resumen

**Fundamentos:** Se estudió el efecto de *Anthracinum* CH 200 para prevenir el ántrax en ovejas y cabras en zonas de menor y mayor endemia del distrito de Kadapa (India).

**Métodos y materiales:** Esta investigación se efectuó en 159.250 ovejas y cabras en el distrito de Kadapa una zona endémica con ántrax, de 2003 y 2008, en el que se cubrieron consecutivamente 1 localidad endémica y 17 localidades menos endémicas. Se mezclaron detenidamente 15 ml de una dilución de *Anthracinum* 200 con 1 litro de una suspensión de albendazol. Esta mezcla se administró por vía oral con una pistola o una jeringa de 10 ml en un único bolo de 10 ml a los animales adultos y de 5 ml a los jóvenes.

**Resultados:** Todas las ovejas y cabras se salvaron con una dosis única de Anthracinum CH 200 tanto en zonas con endemia menor como en las endémicas. La relación de costes entre homeopatía y vacunas constatada fue de 1:1.57

**Conclusiones:** La homeopatía es muy eficaz en la prevención y curación del ántrax en ovejas y cabras. Constituye un tratamiento muy económico, seguro y de respuesta rápida.

## Prévention d'une épidémie d'antrax (fièvre charbonneuse) chez les ovins et les caprins avec Anthracinum CH 200

### Résumé

**Contexte:** Une étude a été effectuée sur l'effet de l'Anthracinum C H 200 dans la prévention de la fièvre charbonneuse chez les ovins et les caprins dans les villages moins endémiques et fortement endémiques du district de Kadapa.

**Méthodes et matériels:** Cette recherche, menée de 2003 à 2008 sur 159 250 ovins et caprins dans le district de Kadapa en Inde où la fièvre charbonneuse était endémique, a couvert un village endémique et 17 villages moins endémiques. 15 ml d'une dilution d'Anthracinum 200 ont été soigneusement mélangés à 1 litre de 2,5 % de suspension d'albendazole. Ce mélange a été administré par voie orale à l'aide d'une pulvérisation mouillante ou d'une seringue de 10 ml, en un seul bolus de 10ml pour les adultes et de 5 ml pour les jeunes.

**Résultats:** Tous les ovins et les caprins ont été sauvés par une dose unique d'Anthracinum CH 200 tant dans les villages où la fièvre charbonneuse était moins endémique que dans les villages où elle était endémique. Le rapport entre le coût du vaccin et le coût de l'homéoprophylaxie était de 5.47 :1

**Conclusion:** L'homéopathie est très efficace en matière de prévention et de traitement de la fièvre charbonneuse chez les ovins et les caprins. Elle offre un traitement sûr et rapide à des prix très bas.

## 以炭疽菌素CH 200來預防患有地方性炭疽病的綿羊和山羊

### 摘要

**背景:** 炭疽病是令綿羊和山羊致命的敗血病，由炭疽桿菌引發，其典型特徵是發燒、肌肉震顫、呼吸困難，經常猝死伴隨直腸脫垂、氣脹及從身上的天然孔道滲出黑如焦油般的血。這是一種普遍在哺乳類動物中流行的動物傳染病。在炎熱潮濕的天氣中發病率較高，沒有有效的治療方法。這種流行病可以透過接種炭疽芽胞菌疫苗或順勢療法來控制。疫苗昂貴而且不容易獲得，即使獲得；防疫人員也不願為動物進行預防注射，因為恐懼會自體感染。在嚴重的爆發中，需要另一劑加強劑。順勢療法提供了一個安全的選擇，非常有效和反應迅速。順勢療法病質藥炭疽菌素的選項與炭疽病的症狀最為吻合。順勢療法和疫苗接種的成本分別為56派薩和8.20盧比。

**方法及材料:** 這項研究中有1,59,250隻綿羊和山羊，在印度丘德達帕區域，由2003至2008年間炭疽病爆發時，連續覆蓋1個有流行病和17個沒有流行病的村莊。牧羊人在丘德達帕接受斯利帕提藥廠的獸醫服務，牠們有炭疽病的症狀及病變，如腹脹、滲出黑如焦油的血、直腸脫垂。沒有採集侵入性或非侵入性樣本。所以在這項研究中沒有涉及道德倫理。該研究和藥物治療僅依據臨床症狀。從牧羊人那裡得到口頭和書面同意。以15毫升炭疽菌素 200C的稀釋液完全混合1升的2.5% 丙硫咪唑藥液後，以灌藥槍或10ml注射器來進行口服式灌藥，成年的以快速灌注方式給予10ml，年輕的則給予5ml。

**結果:** 在有或沒有流行病的村莊內，以一劑炭疽菌素CH 200治療了所有綿羊和山羊。

**結論:** 順勢療法在預防和治療患有炭疽的綿羊和山羊上是非常有效，而且非常便宜，安全和快速見效。