


## Influence of *Tarantula cubensis* Extract on the Treatment of the Oral Lesions in Cattle with Bluetongue Disease

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### Summary

The study evaluated the influence of *Tarantula cubensis* extract 1:100/D2 (Theranechron®, Richter Pharma, Austria) on the treatment of the oral lesions in Bluetongue disease in cattle. Nine Holstein cattle with Bluetongue disease were used in the experiment. Clinical signs included fever, anorexia, acute painful bleeding of oral lesions and lameness. Treatment was started without waiting for the serological confirmation of the disease. Six clinically ill cattle (treatment group) were treated with tetracycline, flunixin meglumin and *Tarantula cubensis* extract (Theranechron). The remaining three ill cattle were used as control group and treated with the same treatment regiment except for Theranechron. Twenty four hours after theranechron application re-epithelisation occurred and body temperature returned to normal more rapidly in the treatment group than the control group.

**Keywords:** Bluetongue disease, Cattle, Oral lesions, *Tarantula cubensis* extract

## Sığırların Mavi Dil Hastalığında Ağız Lezyonlarının Tedavisinde *Tarantula cubensis* Ekstraktının Etkinliği

### Özet

Sığırlarda mavidil hastalığında oral lezyonların tedavisinde *Tarantula cubensis* ekstraktının 1:100/D2 (Theranechron®, Richter Pharma, Austria) etkinliği değerlendirilmiştir. Mavidil hastalığı bulunan 9 holştayn sığır çalışmada kullanıldı. Ateş, iştahsızlık, akut ağrılı ve kanamalı ağız lezyonları ve topallık bulguları vardı. Tedaviye serolojik sonuçlar beklenmeden başlandı. Klinik olarak hasta 6 sığır tetracycline, flunixin meglumin ve *Tarantula cubensis* ekstraktı (Theranechron) ile tedaviye alındı. Diğer hasta 3 sığır ise kontrol olarak Theranechron'suz aynı tedavi kürüne alındı. Yirmidört saat sonra tedavi grubunda kontrol grubuna kıyasla daha hızlı re-epitelizasyon ve vücut ısısında normale dönüş görüldü.


**Anahtar sözcükler:** Mavidil hastalığı, Sığır, Ağız lezyonları, *Tarantula cubensis* ekstraktı


### INTRODUCTION

Bluetongue disease is an insect-borne viral disease of sheep and, less frequently, cattle. It is caused by a virus of the genus *Orbivirus* called Bluetongue virus (BTV). Unlike sheep, infection in cattle is mostly asymptomatic, although a few animals may develop severe clinical signs<sup>1</sup>. Clinical signs recorded include fever, lameness resulting from inflammation of the coronary bands and sensitive

lamina of the feet, edema of the lips and catarrhal stomatitis, excessive salivation, nasal discharge and enteritis<sup>1-3</sup>. For treatment, local use of disinfectant may be of some value<sup>1</sup>. Since bluetongue disease is a viral origin, recovery from the disease takes long time and results in economic losses. Diseases that have a viral origin may benefit from alternative medicine such as

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homeopathy <sup>4</sup>. The homeopathic remedy *Tarantula cubensis* (*Cuban tarantula*), used in homeopathy to treat abscesses with burning pains, gangrene, septicemia, toxemia, support of demarcation in necrotic and phlogistic processes, has been grouped by homeopathic authorities with either the mygalomorph or wolf spiders <sup>5</sup>. It is known to stop growth of canine mammary tumors <sup>6</sup>, to be effective in the treatment of bovine cutaneous papillomatosis <sup>7</sup>, in prevention of retentio secundinarium in cattle <sup>8</sup>, in the treatment of chronic endometritis in dairy cows <sup>9</sup> and in the treatment of foot and mouth disease lesions <sup>10</sup>. The aim of the present study was to evaluate efficacy of *Tarantula cubensis* extract on oral cavity lesions caused by blue tongue virus.

## MATERIAL and METHODS

The cases studied in this study were obtained from a cattle farm in Burdur. The farm consisted of 25 cattle (15-18 months old), 9 of which were with fever, anorexia, acute painful bleeding oral lesions and lameness and 16 of which were clinically healthy. Blood samples of all clinically ill cattle were collected into vials containing EDTA (n = 9). Hematological analyses were carried out on a cell counter, MS9 (MELET SCHLOESING Laboratories, France). For serological analysis, serum was harvested from 10 ml vacutainer tubes without anticoagulant in the laboratory using Hettich Zentrifugen Universal 30F model centrifuge device by centrifuging 3.000 cycles for 7 min. Serum was tested for Foot and Mouth Disease, Epizootic Hemorrhagic disease and Blue Tongue Disease and found to be positive for Blue Tongue disease using ELISA (Enzyme Linked Immunosorbent Assay) method.

The treatment was commenced without waiting for the results of serological analyses. Six clinically ill cattle were treated with tetracycline (Tetravet forte LA 30%, Eczacibasi 20 mg/kg, IM), flunixin meglumine (Flumeglin inj. Teknovet, 1.1 mg/kg, IM) and *Tarantula cubensis* extract (Theranekron, 1:100/D2, 5 ml, SC, Richter Pharma, Austria). The remaining three ill cattle were used as control group and applied the same treatment except for Theranekron. Clinical examinations (WBC and Lymphocyte count, heart rate, rectal temperature) and visual scoring of

oral lesions [1 = bulla, 2 = burst bulla with hyperemia, 3 = re-epithelisation (pseudomembraneous lesions) and 4 = complete healing (no lesion)] were performed before and after 24 h and 10 days after treatment in all animals in the treatment and control groups.

Mean values of hematological findings, heart rate and rectal temperature of infected cattle in two groups were statistically analyzed by using the t-test and median values of oral mucosal lesions in two groups were analyzed by Mann - Whitney U test. Value of P<0.05 was considered to be significant.

## RESULTS

The affected animals manifested clinical sings of loss of appetite, fever, weakness, bleeding oral lesions, excessive salivation, conjunctivitis, apathy and /or tiredness and lameness due to feet lesions. Oral lesions were erosive ulcerative and hemorrhagic. Results of serological analysis were positive for Blue Tongue disease by ELISA method. According to the hematological outcomes, a marked leukocytosis due to lymphocytosis was noted while erythrocyte, haematocrit and hemoglobin values were within the normal range. After 24 h, mean values of leukocytes were 22.15±4.25 and 17.11±2.01 for control and treated groups, respectively. Leukocyte counts decreased in the treatment group after 24 h compared to the control group (*Table 1*). The mean value of heart rate in control and treatment groups during study was not significantly different (*Table 2*).

A significant decrease in the rectal temperature 24 h after the treatment was observed in the treatment group as compared to the control group (*Table 2*).

Very rapid healing was observed in oral mucosa lesions 24 h after the treatment in the treatment group when compared with control group. Statistically significant difference (P<0.05) between median value of oral lesions in control and treatment groups were seen after 24 h and results are shown in *Table 3*. At the 10th day of treatment all cattle in the treatment group recovered and one cattle still had re-epitelisation in the control group, but no statistically differences was found (*Table 3*).

**Table 1.** Hematological findings of infected cattle with BT in control and treatment groups (Mean±SE)

**Tablo 1.** Mavidil hastalığı ile enfekte sığırların kontrol ve tedavi gruplarındaki hematolojik bulguları (Mean±SE)

Group	Day	Before Treatment		24 h Later		10 Days Later	
		WBC	Lymphocyte	WBC	Lymphocyte	WBC	Lymphocyte
Control (n=3)		24.12±5.14	20.83±3.99	22.15±4.25	17.43±7.04	15.64±1.77	12.87±3.82
Treatment (n=6)		24.28±6.29	18.09±5.60	17.11±2.01	11.62±2.03	13.29±2.18	6.70±3.12
P		N.S.	N.S.	0.0406	N.S.	N.S.	0.0346

**Table 2.** Heart rate (beats/ minute) and rectal temperature of infected cattle with BT in control and treatment groups (Mean±SE)**Tablo 2.** Mavidil hastalığı ile enfekte sığırların kontrol ve tedavi gruplarındaki kalp atım sayıları (adet/dk) ve rektal ısıları (Mean±SE)

Group	Day	Before Treatment		24 h Later		10 Days Later	
		Heart Rate (Beats/ Min)	Rectal Temperature	Heart Rate (Beats/ Min)	Rectal Temperature	Heart Rate (Beats/ Min)	Rectal Temperature
Control (n=3)		79.2±1.91	40.3±0.70	79.3±1.21	40.03±0.5	79.1±1.01	39.00±0.27
Treatment (n=6)		81.1±1.40	40.05±0.60	77.1±1.33	38.72±0.38	76.9±1.20	38.73±0.34
P		NS	NS	NS	0.0029	NS	NS

**Table 3.** The median values of oral mucosal lesions in control and treatment groups**Tablo 3.** Kontrol ve tedavi gruplarındaki oral mukozal lezyonların median değerleri

Group	Day	Before Treatment	24 h Later	10 Days Later
Control (n=3)		1 (1-1)	1 (1-1)	3 (3-4)
Treatment (n=6)		1 (1-1)	3 (2-3)	4 (4-4)
P		NS	<0.0384	NS

1) Bulla  
2) Burst bulla with hyperemia  
3) Re-epithelialization of lesion  
4) Complete healing

## DISCUSSION

Bluetongue (BT) is an OIE 'list A' disease of ruminants, caused by Bluetongue virus (BTV) <sup>1</sup>. Although several studies have been carried out on the treatment of the disease, no effective treatment for BT is yet available. Homeopathy is a form of alternative medicine <sup>4</sup>. Although the mechanism of the action of *Tarantula cubensis* venom is not completely clear, it is thought to stimulate the defense mechanism of the body to add spontaneous remission <sup>11,12</sup>. Theranekron as a homeopathic drug is prepared by the alcohol extraction of venom from the spider *T. cubensis*. The drug is reported to stimulate the absorption and demarcation of mammary gland tumors in dogs <sup>6,13</sup>, paronychia in cattle <sup>14,15</sup>, and many types of ulcers and abscess, as well as treating necrotic, phlogistic of proliferative cases in animals <sup>11,12,16</sup>. In this study the effect of Theranekron on the treatment of oral lesions of BT was determined.

In the present study, after 24 h, rapid occurrence of re-epithelisation was noted in oral mucosa as noted visually and body temperature returned to normal in treatment group when compared to the control group. These differences were also statistically significant. As a

result of the recovery from lesions in the treatment group after 24 h of the treatment, appetite and food intake improved when compared with the control group. By the antiphlogistic effect of *Tarantula cubensis*, reduced inflammation in oral mucosal lesions and decreased leukocyte and lymphocyte counts were also observed after 24 h. After 10 days of the treatment no clinical difference was present in the studied parameters between the two groups. At the 10 th day of treatment no differences was found in leukocyte counts, however lymphocyte counts in the treatment group was lower when compared with control group and also found to be statistically significant (*Table 1*).

In conclusion, this drug resulted in rapid healing in oral lesions associated with BTV within 24 h of use and thus may be regarded as an adjunct remedy in the treatment of BTV by practicing veterinarians in the field. However, the results also obliged researchers to carry out more detailed studies to disclose the effect of the extract.

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