

## Poisoning by Diacetoxyscirpenol in cattle fed citrus pulp in the state of São Paulo, Brazil

### Intoxicação por Diacetoxyscirpenol em bovinos alimentados com polpa cítrica no Estado de São Paulo, Brasil

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#### Short communication

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## SUMMARY

The death of cows poisoned by the trichothecene is reported from a cattle herd of animals fed with citrus pulp containing 7 mg/kg of the micotoxin diacetoxyscirpenol.

UNITERMS: Poisoning; Bovine; Diacetoxyscirpenol; Citrus; Pulps

## INTRODUCTION

Diacetoxyscirpenol, T-2 toxin, zearalenone, nivalenol, deoxynivalenol (vomitoxin) are mycotoxins (trichothecenes) isolated from strains of the following *Fusarium* species: *F. episphae*, *F. lateridium*, *F. nivale*, *F. oxysporum*, *F. tricinctum*; species of *Cephalosporium*, *Myrothecium*, *Trichoderma* and *Stachybotrys* have also been reported to produce trichothecenes (World Health Organization<sup>9</sup>, 1979). They grow on cereal grains such as wheat, barley, oats, rye, millet and corn (Oehme<sup>6</sup>, 1990).

Dried citrus pulp can replace 67% of the maize in concentrate mixtures for lactating cows at pasture, without affecting neither the volume nor fat content of milk production (Veloso<sup>8</sup>, 1985).

Poisoning by diacetoxyscirpenol has several characteristic, clinical signs which may include: anorexia, digestive disorders, diarrhea, progressive weight loss and even death with hemorrhagic lesions in the stomach, heart, intestines, lungs, urinary bladder and kidneys (Smalley<sup>7</sup>, 1973). Pigs (Coppock *et al.*<sup>2</sup>, 1989; Macri *et al.*<sup>3</sup>, 1991), dogs (Coppock *et al.*<sup>2</sup>, 1989), cattle (Coppock *et al.*<sup>2</sup>, 1989) and mice (Mayura *et al.*<sup>5</sup>, 1987) are susceptible to the toxin. The DL-50 for mammals range from 0.5 to 1.0 mg/kg (Busby; Wogang<sup>1</sup>, 1988)

During November 1994 the Hospital Veterinário da Faculdade de Medicina Veterinária e Zootecnia da Universidade de São Paulo attended 2 adult, Holstein cows with alopecia of the head and neck, moderate bloody diarrhea, signs of light, yellowish and/or reddish discoloration of the ocular mucosa, increased hepatic area, dehydration, lack of milk production, prostration, weakness, decumbency and death after 10-15 days. Serum levels of urea, creatinine, aspartate aminotransferase (AST) and gamma glutamyltransferase (GGT) were moderately increased. Discrete hypochromic anemia was diagnosed in one case. At necropsy, liver and kidneys were congested and hemorrhages were observed in the abomasum and bowel. The owner reported the deaths of 6 other cows, of a total of 200 bovines on the farm, which had shown similar symptoms. These signs appeared 30 days after the introduction of citrus pulp into the diet.

Clinical signs, gross lesions and the history of the disease suggested poisoning by trichothecenes contained in the citrus pulp. Examination of the citrus pulp for fungi revealed only *Aspergillus* sp., *Penicillium* sp and *Mucor* sp. Chemical analysis by thin-layer chromatography (Marochi ; Soares<sup>4</sup>, 1993) detected 7 mg/kg of Diacetoxyscirpenol. The fact that *Fusarium* was not found in the citrus pulp, but only the toxin, suggest that the contamination occurred in the orange groove.

## RESUMO

Relata-se a morte de bovinos causada pela ingestão de polpa cítrica contaminada pela micotoxina Diacetoxyscirpenol (7mg/kg), pertencente ao grupo dos tricotecenos.

UNITERMOS: Envenenamento; Bovinos; Diacetoxyscirpenol; Polpa cítrica

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