

1 **A possible tremorgenic mycotoxicosis by Roquefortine C in a Bovine Herd.**

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8 A total of 15 beef cows and calves were referred for history of neurological signs.
9 The animals (12/15 Chianina breed, 3/15 Limousine) were grazing in 300 ha area,
10 fed with grass and hay. Inspection of the hay revealed macroscopic alterations,
11 consisting of diffuse and heavy mold contamination of many hay bales.

12 Due to the not cooperative attitude, the animals were only visually examined in the
13 field; the neurological signs observed were ataxia, intentional head tremors and
14 muscle twitching. Only 3 calves with severe neurological signs were housed in a
15 medication area and underwent a complete clinical exam. All 3 calves showed
16 intentional head tremors and muscle twitching; 1/3 presented severe ataxia and
17 stiffness gait, while 2/3 calves were recumbent and unable to rise. The most
18 important clinical data were: hyperthermia, tachypnea, tachycardia and long capillary
19 refill time. The neurological examination showed deficits of V and VII cranial nerves.
20 Calves could swallow, but they were unable to grab the food. Based on history and
21 clinical examination the following differential diagnoses were considered:
22 tremorgenic mycotoxicosis, nervous ketosis, nervous BVD form, BHV1-5, Listeriosis
23 and WMD.

24 Blood samples were collected for CBC count and biochemistry panel (TP, urea,
25 creatinine, total and direct bilirubin, GGT, AST, CPK, Mg, Se and vit E), urinalysis
26 was performed for ketone bodies. Calves were also tested for infectious diseases
27 (Listeriosis, BVD, BHV 1-5). Multiple samples of altered hay were analyzed for
28 mycotoxins and hay balls were removed in all animals' stock. The grazing animals
29 recovered spontaneously within 1 week along with 2/3 hospitalized calves, while 1/3
30 calf was euthanized due to poor general conditions.

31 CBC, biochemistry panel, vit E and oligo-minerals resulted within normal ranges and
32 no positivity for infectious agents were detected. Food analysis showed high

33 concentrations of roquefortine C (RC): 345 µg/kg DM. Presence of RC in livestock
34 food is highly reported, in particular in visibly moldy areas (1). RC intoxication causes
35 anorexia, paralysis and several reports attribute it neurotoxic properties (2). In mice
36 experimental intoxications induced muscle contractions, ataxia, prostration and
37 intermittent seizures. RC intoxication, resembling penitrem A (PA) intoxication, has
38 been reported in dogs (3). Moreover, RC is considered a sensitive biomarker for PA
39 exposure (3). PA is a tremorgenic fungal toxin which intoxication causes ataxia,
40 tachypnea, and sustained tremors (4).

41 The pathophysiological mechanism by which mycotoxins affect the CNS is unknown
42 but the biochemical lesions are reversible. Diagnosis is based on the clinical signs,
43 demonstration of the mycotoxins in the feed and identification of the fungal elements
44 in blood and feces. Affected animals recover completely when they are removed
45 from infected pastures (5).

46 Based on neurological signs, recovery after altered food removing and results of
47 food analysis, the diagnosis of tremorgenic intoxication was hypothesized. Limits of
48 this report are: lack of PA dosage in the food and lack of RC and PA evaluation in
49 blood and feces of affected animals.

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