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A PRELIMINARY STUDY ON SELENIUM CONTENT OF FORAGES AND LOCAL BY-PRODUCTS IN THE TADLA AREA (MOROCCO) IN CONNECTION WITH OVINE NUTRITIONAL MYOPATHY

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Résumé

ÉTUDE PRÉLIMINAIRE DE LA CONCENTRATION DE SÉLÉNIUM DANS LES FOURRAGES ET LEURS DÉRIVÉS EN RELATION AVEC LA MYOPATHIE NUTRITIONNELLE OVINE DE LA RÉGION DE TADLA (MAROC). — Pour apporter des éléments épidémiologiques de confirmation à une suspicion de myopathie ovine enzootique dans la région du Tadla (Maroc), 20 échantillons d'aliments, représentatifs des rations pour moutons ont été analysés concernant leur teneur en sélénium. A une exception près, tous les échantillons avaient une teneur inférieure au niveau recommandé de 0,1 mg/kg de matière sèche.

The Tadla area is a lowland at the feet of the Atlas mountains. About one third of its surface is irrigated. Sheep breeding of about 425 000 heads is a major animal industry in the area (Drissi, 1983). Field observers have emphasized the high prevalence of a disease of lambs, referred to by the breeders as «merd ez-zehf» (paralytic disease) and diagnosed by local veterinarians as enzootic muscular dystrophy (Salem, personal communication). Lamb mortality due to the disease steeply increases with genetic up-grading of the ovine flock (Berger *et al.*, 1983).

The relationship between enzootic ovine myopathy and selenium deficiency has been highlighted in many countries (Lamand, 1966). In order to evidence selenium deficiency in a region, determination of selenium content in locally growing plants used in the animal diet is far more reliable than soil analysis (Lamand, 1979) and more feasible than serum analysis.

This prompted us to investigate the selenium

content of the feedstuffs most commonly used in ovine rations in the area. As pasture grass is a too heteroclitous material to be analysed, sampling mainly involved straw, alfalfa and sugar beet by products.

Materials and Methods

The Tadla area was divided into three sub-regions following geographical, pedological and agricultural characteristics (Drissi, 1983). Sub-region A was an irrigated lowland area; sub-region B was a lowland area with local well irrigation; sub-region C was a piedmont area, with local river irrigation.

In the three sub-regions, samples of straw were taken in September 1983. The straw had been harvested in May and stored in traditional stacks. Alfalfa samples were also taken from the three sub-regions in the same period. Alfalfa was sampled at pre-flowering or flowering stage, or as hay. Samples of sugar beet by products only involved sub-regions A and B. Fresh sugar beet pulp, originating from sub-region A was found in sub-region A

Table 1. — Selenium content of some animal feedstuffs of the Tadla area.

	selenium content (mg/kg dry matter)			
	straw	alfalfa	sugar beet	
			leaves	pulps
<i>sub-region A</i> : lowland, industrial irrigation	0.01 0.01 ...	0.03 0.03 0.03	0.03 0.07 ...	0.21 ^a 0.05 0.05
<i>sub-region B</i> : lowland, local well irrigation	0.06 0.01	0.02 0.02	0.07
<i>sub-region C</i> : piedmont, local river irrigation	0.04 0.04	0.03

a: possibly contaminated by soil.

and B, where it was dried in a traditional way before being used in the sheep ration. Sugar beet leaves were found in sub-region A and B. Straw, alfalfa, sugar beet leaves and sugar beet pulps involved six, six, three, and three samples, respectively. Two other samples originated from fodder pea and one locally produced concentrate.

In those feedstuffs, straw is representative of the maintenance ration of non pregnant ewe, obtained by stubble grazing or straw distribution. Alfalfa, sugar beets by products, fodder pea and concentrate are representative of late pregnancy and lactation rations of the ewes.

Detailed information on sampling methods, drying of fresh material and preparation of plant samples for fluorimetric selenium determination are given elsewhere (Lamand, 1969).

Results

The selenium content of straw, alfalfa and sugar beet by products is given in table 1. Except in one case of fresh sugar beet pulps, all samples had a selenium content under the recommended value of 0.1 mg/kg dry matter. Selenium content in fodder pea and of locally processed concentrate

was also under that level (0.02 and 0.06 mg/kg dry matter, respectively).

Discussion

The present results provide epidemiological evidence of possible nutritional myopathy in the whole area, and lead support to the tentative diagnosis by field practitioners. A complementary study which is presently being carried out by transaminases determination in lambs, randomly sampled in affected forms, will allow to evaluate the exact prevalence of clinical and subclinical forms of the disease (Coulibaly, 1984).

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Summary

In order to provide epidemiological support to tentative diagnosis of ovine enzootic myopathy in the Tadla area (Morocco), 20 feedstuff samples, representative of ovine rations, were tested for selenium content. All but one samples had a far lower value than the recommended level of 0.1 mg/kg dry matter.

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