

## PRELIMINARY OBSERVATIONS OF THE PRESENCE OF PREDNISOLONE IN DAIRY CATTLE URINE SAMPLES

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**Objectives:** In the years 2008-09 the Lombardy region has supported a research with the purpose to detect the presence of drug residues in urine and liver samples collected from cattle at the slaughterhouse. All liver samples resulted to be negative, while the 72% of samples of urine were positive for prednisolone presence. Due to the high number of positive samples it was hypothesized that the stress transport and pre-slaughter conditions could lead to the production of prednisolone in urine. In order to confirm this hypothesis bovine dairy cattle were treated with adrenocorticotrophic hormone (ACTH) to simulate stress condition..

**Materials and methods:** Three Holstein Friesian cows (multiparous, non-pregnant, over 200 days lactating with 29 kg/day mild milk production), were selected. Urine samples were obtained by bladder catheterization before and after the double intramuscular treatment with 1 ml of Sinacthen (Defiant Pharmaceutical) which corresponds to 200 IU of ACTH. Samples were collected at the start of the investigation, after treatment and the time of slaughter (tab. 1). Urine analyses to detect prednisolone presence were performed at the Anabolic and drug residue laboratory of IZSLER with LC-MS/MS system and limit of quantification of 0.58 ng/ml.

**Results:** At the start of the study, all cows were negative for two samples before treatment. In contrast, , all urine samples collected at two and six hours after treatment were positive with prednisolone values between 0.69 and 1,48 ppb. Moreover, with the exception of bovine no. 815 ( sample collected at 42nd hour) no drug was detected in the samples collected 18 and 42 hours after treatment. All samples after transport and slaughter resulted to be positive with prednisolone values between 0.63 and 0,82 ppb.

**Conclusions:** The presence of prednisolone after ACTH treatment seems to suggest the possibility that this molecule could be physiologically produced. Other studies need to be performed in order to confirm this hypothesis and to clarify the metabolic pathway.

**Keywords:** Dairy cow, urine, prednisolone