MOLECULAR EPIDEMIOLOGY OF CRYPTOSPORIDIOSIS ON CATTLE FARMS IN THE CANARY ISLANDS

Del Río, M.C.[1]; Martín, S.[1]; Quílez, J.[2]; Molina, J.M.[1]; Muñoz, M.C.[1]; Ferrer, O.[1]; Conde, M.M.[1]; Barba, E.[1]; Ruiz, A.[1]

[1] Department of Animal Pathology, Faculty of Veterinary Medicine, University of Las Palmas de Gran Canaria, Spain.

[2] Department of Animal Pathology, Faculty of Veterinary Sciences, University of Zaragoza, 50013 Zaragoza, Spain.

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INTRODUCTION

Cryptosporidiosis is a disease caused by different species of the genus *Cryptosporidium*, a protozoan parasite capable of causing large economic losses in ruminant livestock farms, as well as diarrhoea in humans. The objective of this study has been to determine the prevalence of *Cryptosporidium* species in cattle from farms in the Gran Canaria by both microscopic and molecular tools.

MATERIALS AND METHODS

1. **Survey:** risk factors + economic impact (21 questions).
2. **Sampling:** 8 faeces calves + 8 faeces adults (15 farms)
3. **Microscopical analysis:** sedimentation + Kinyoun carbol fuchsin stain.
4. **Molecular analysis:** DNA extraction with QIAamp Fast DNA Stool Mini Kit® and PCR (18S and PAR60).

Figure 1: calf with diarrhoea.

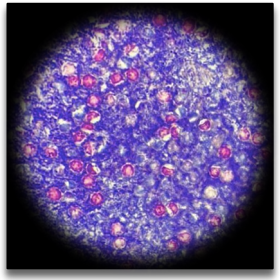

Figure 2: Kinyoun stain + for *Cryptosporidium.*

RESULTS

- All farms were positive for *Cryptosporidium* by Kinyoun staining.
- The number of positives detected by PCR was higher than those detected by Kinyoun, especially in adults.
- A higher number of positives were detected with the 18S marker because PAR60 is specific to *Cryptosporidium parvum.*
- Survey results showed that 90% of the farmers were unaware of the parasite and did not apply any control measures.

	Calves			Adults		
	Kinyoun	PCR		Kinyoun	PCR	
		18S	PAR60		18S	PAR60
+	46,22%	64,46%	48,91%	5,00%	89,29%	30,61%
-	53,78%	35,54%	51,09%	95,00%	10,71%	69,39%

Table 1: comparison of Kinyoun staining and PCR results.

CONCLUSIONS

The results of this study show a high prevalence of cryptosporidiosis in cattle in the Canary Islands, with a high incidence of the zoonotic species *Cryptosporidium parvum*. Surprisingly, most farmers are not aware of the clinical and public heath implications of this fact.

María Cristina Del Río
maria.del129@alu.ulpgc.es

Gobierno de Canarias
Consejería de Economía, Conocimiento y Empleo
Agencia Canaria de Investigación, Innovación y Sociedad de la Información