

USE OF A FAECAL PARASITE CONCENTRATOR 'MINI PARASEP®' FOR DETECTING MICROSPORIDIA IN URBAN AREAS.

Haafizah Hoosen¹, Fernando Izquierdo², Carmen del Aguila², Soledad Fenoy², Angela Magnet², Umar Anjum¹
Antonio Peña-Fernández¹

¹. Faculty of Health & Life Sciences, De Montfort University, Leicester, UK

². Facultad de Farmacia, Universidad San Pablo CEU, Madrid, Spain

Haafizah.hoosen@dmu.ac.uk; Antonio.pena-fernandez@dmu.ac.uk

INTRODUCTION

Recent outbreaks of infection affecting large groups of population in Europe has been related with the emerging group of pathogens microsporidia (Decraene et al., 2012).

MATERIALS & METHODS

40 faecal samples were collected from two locations on 28/06/2016, monitored areas and sources shown in Figs. 1 & 2 using Parasep® tube. The samples were treated according to manufacturer's instructions, the solution smeared onto a microscope slide and stained using a modified trichrome stain (Galván-Díaz et al., 2014; Fig. 3).

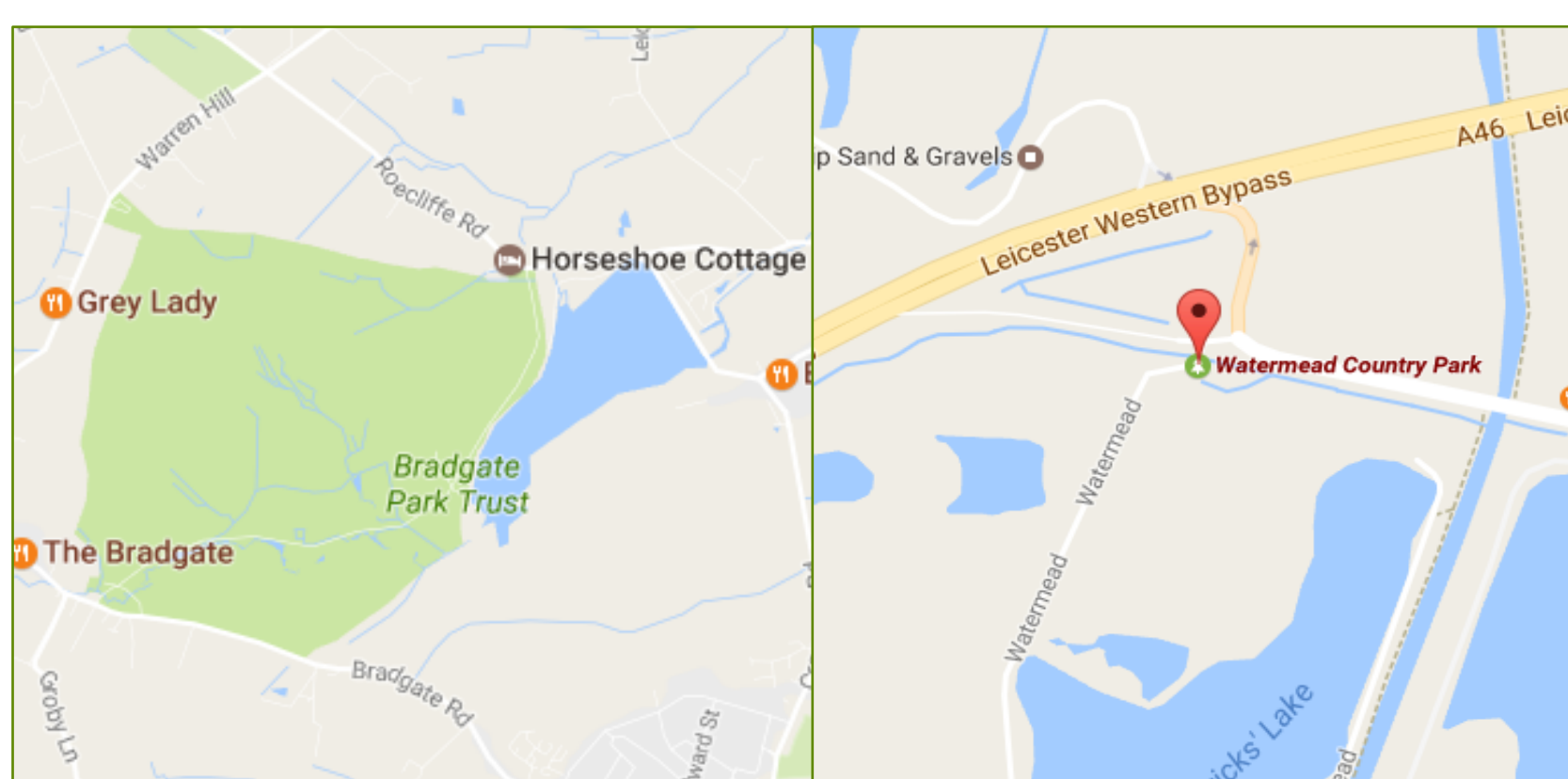


Figure 1: Bradgate Park & Watermead Country Park, Leicester.

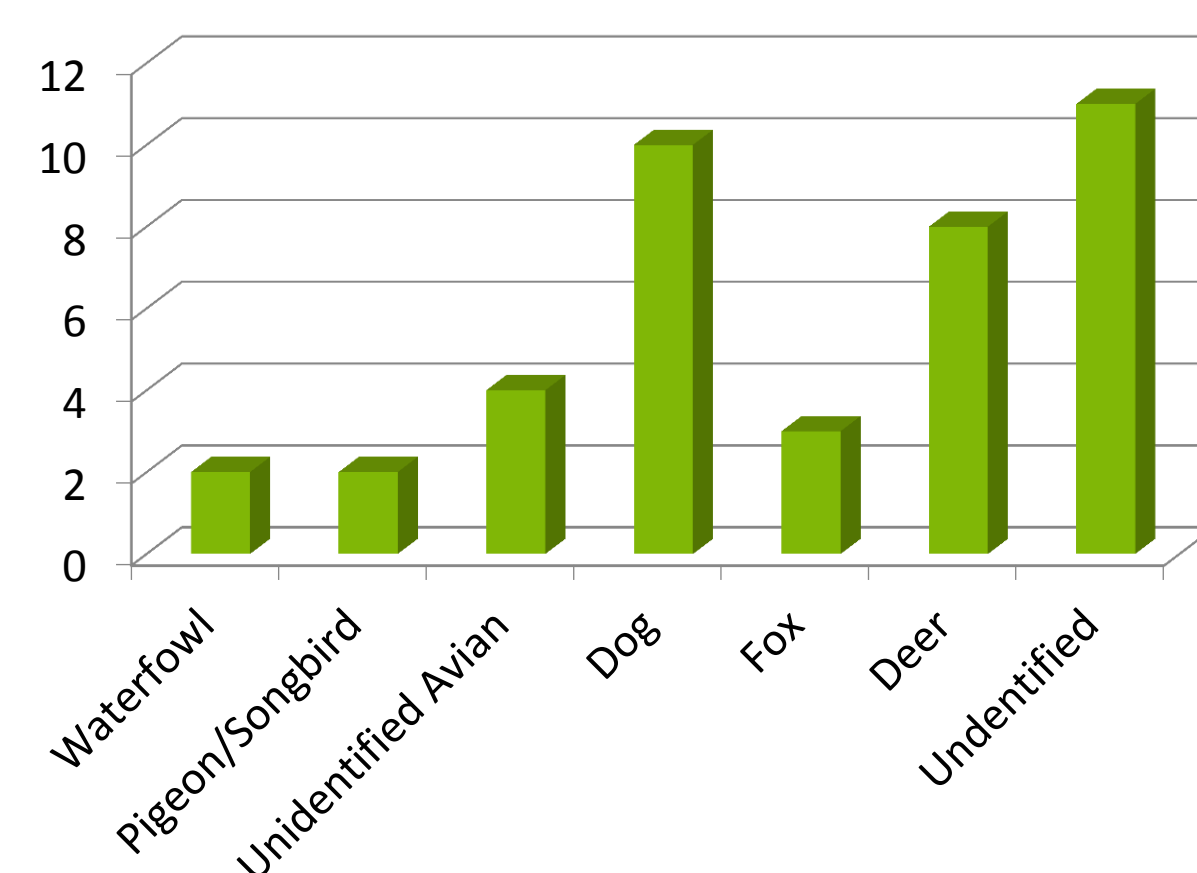


Chart 1: Animal source of faecal samples.

RESULTS

11 of the 40 faecal samples collected were found to have either compatible or positive structures with microsporidia (Table 1; Chart 2; Figs. 4 & 5).

Table 1. Samples found to have positive or compatible structures for microsporidia.

Park/Area	RESULT	SAMPLE SOURCE	DIFFERENCE WHEN TREATED WITH Triton - X?
Bradgate	Compatible with <i>Enterocytozoon bienersi</i>	Dog	No
Bradgate	<i>Encephalitozoon</i>	Unidentified	No
Bradgate	<i>Encephalitozoon</i>	Deer	No
Bradgate	<i>Encephalitozoon</i>	Deer	No
Watermead	Compatible with <i>Enterocytozoon bienersi</i>	Waterfowl	No
Watermead	<i>Encephalitozoon</i>	Unidentified	No
Watermead	<i>Encephalitozoon</i>	Unidentified	No
Watermead	<i>Encephalitozoon</i>	Dog	No
Watermead	Compatible with <i>Enterocytozoon bienersi</i>	Fox	No
Watermead	Compatible with <i>Enterocytozoon bienersi</i>	Dog	No
Watermead	<i>Encephalitozoon</i>	Unidentified	No

OBJECTIVES

The aim of this study was twofold: **a)** to determine the possible presence of microsporidia in recreational environments where there is a risk of exposure to the public; and **b)** to determine if the novel device Parasep® tube (Apacor, UK) with Alcorfix® (alcohol-based fixative) can be used to collect safely animal faecal samples for parasitic diagnoses. This was tested with or without Triton-X.

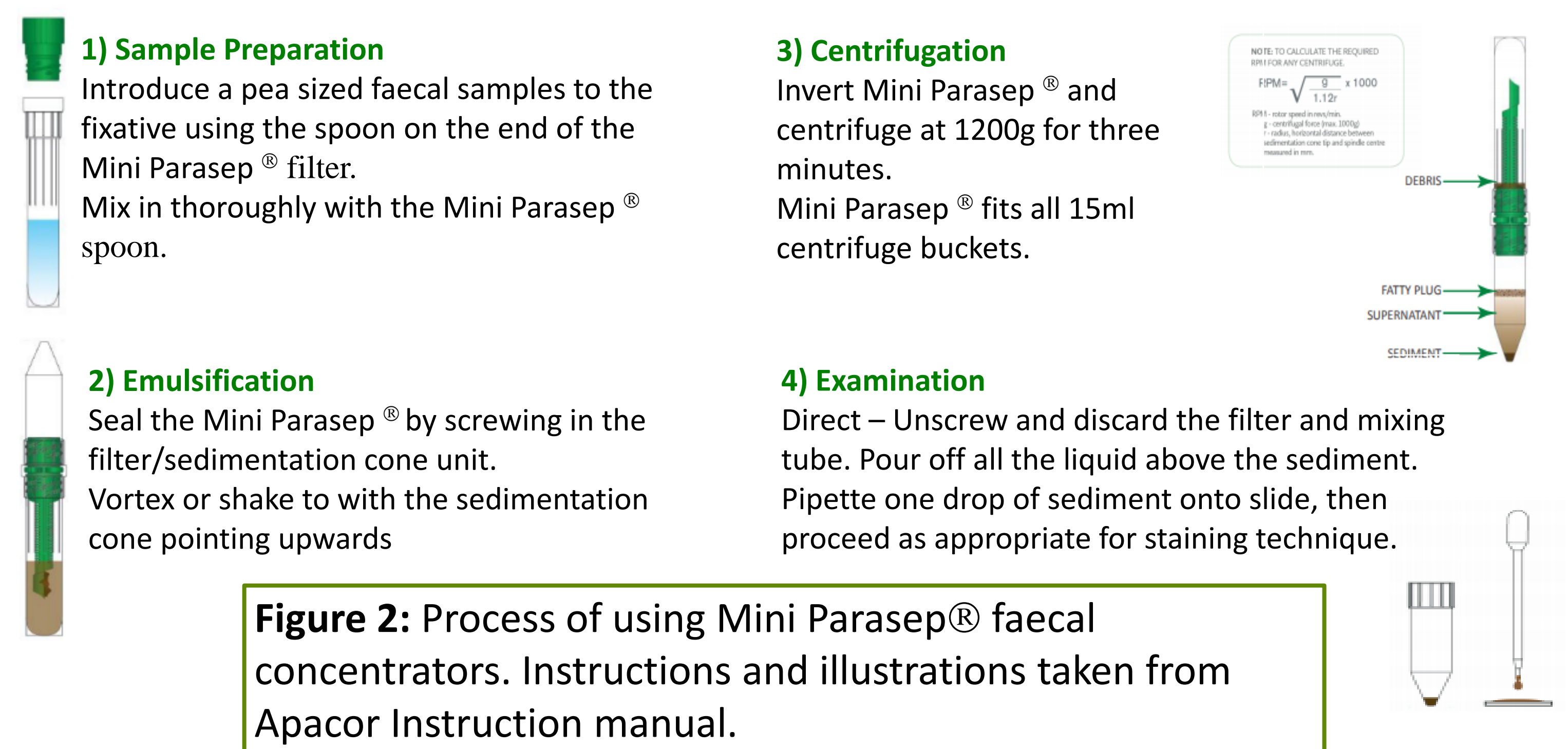


Figure 2: Process of using Mini Parasep® faecal concentrators. Instructions and illustrations taken from Apacor Instruction manual.

Chart 2: Percentage representation of positive and negative samples

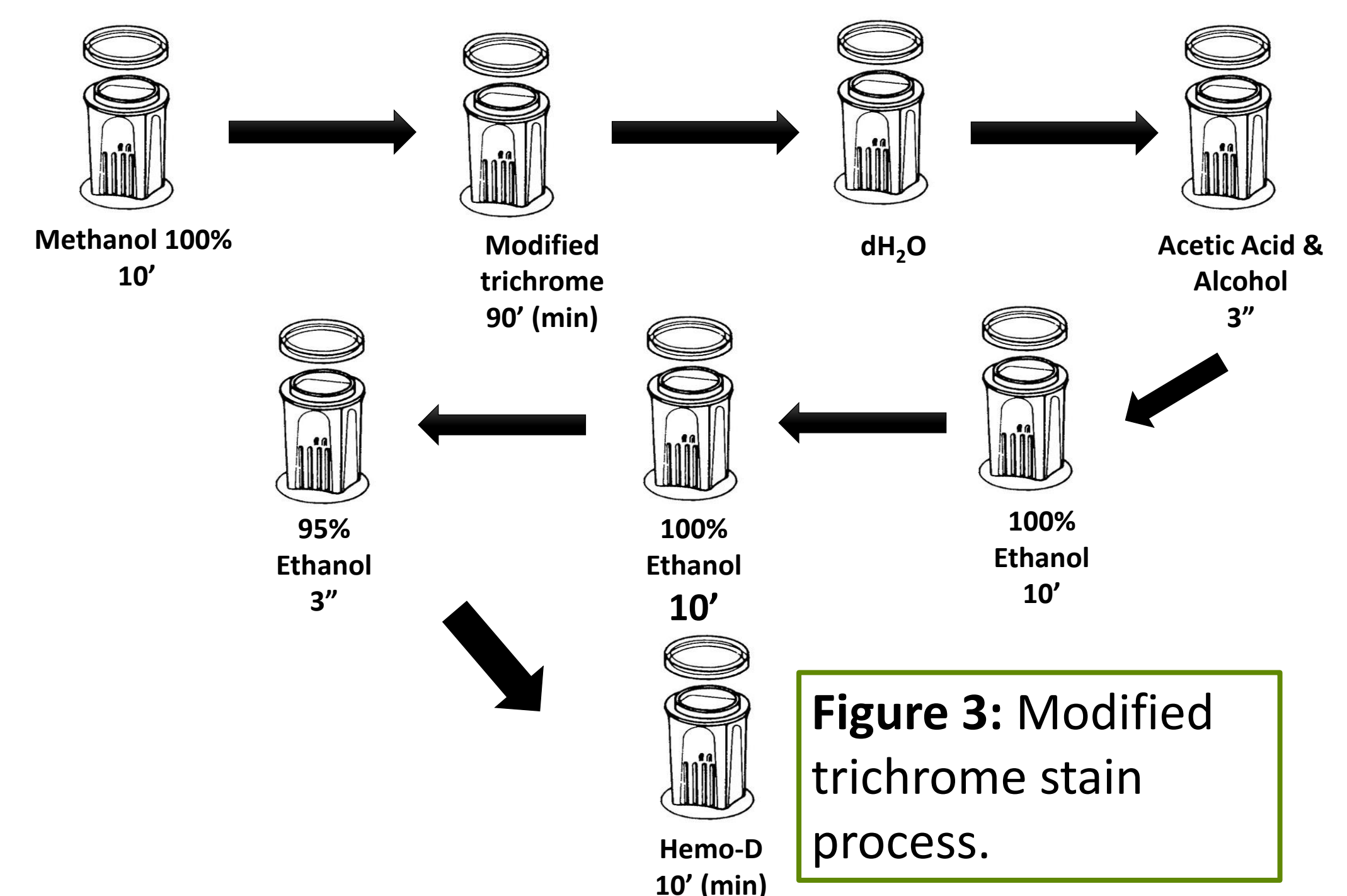
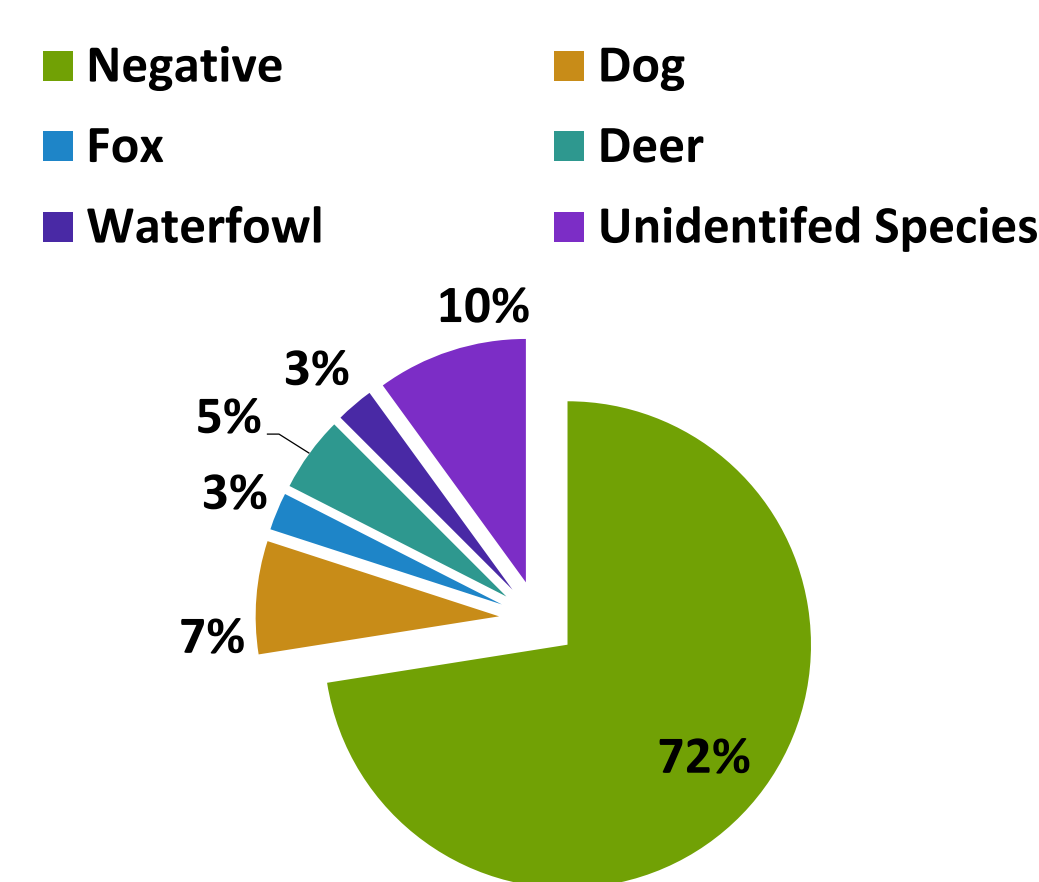


Figure 3: Modified trichrome stain process.

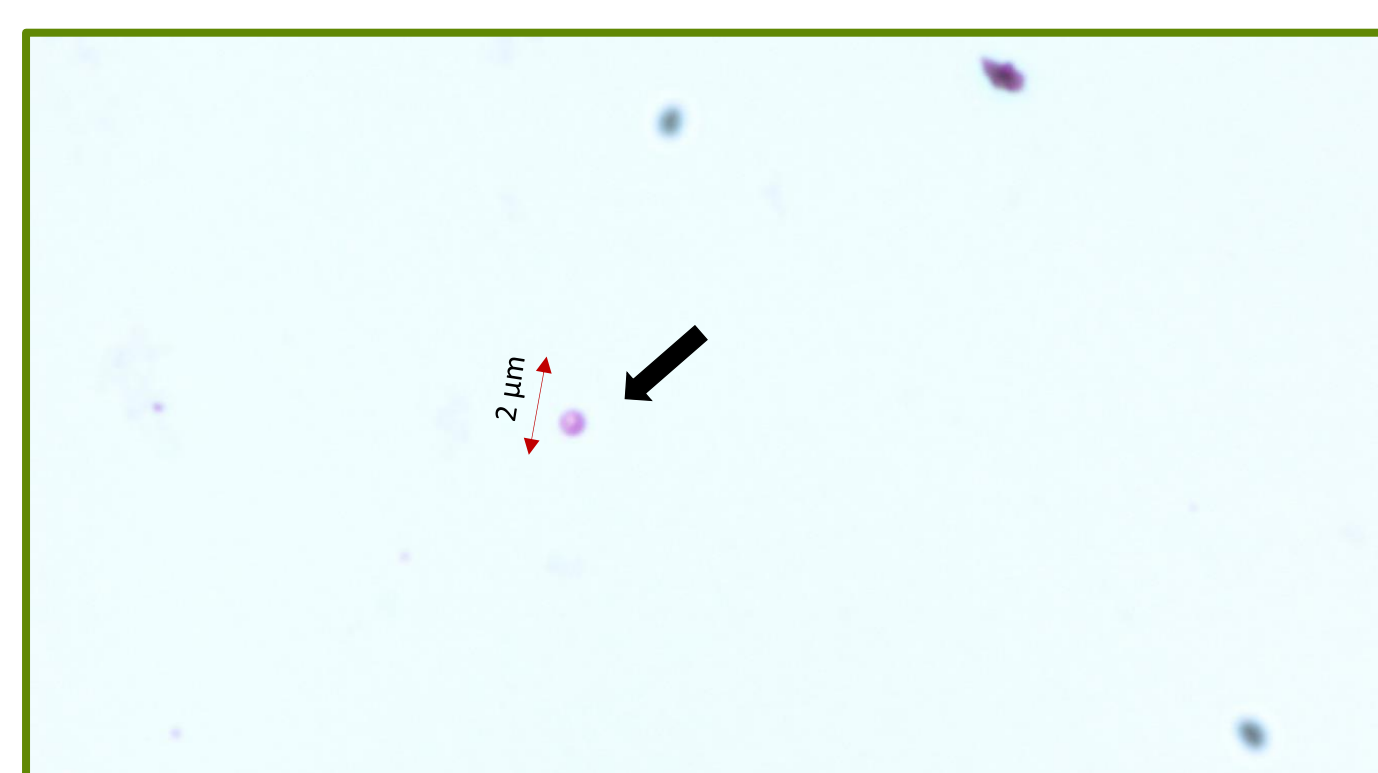


Figure 4: Modified trichrome staining displaying compatible structure for *E. bienersi* at x100 magnification.

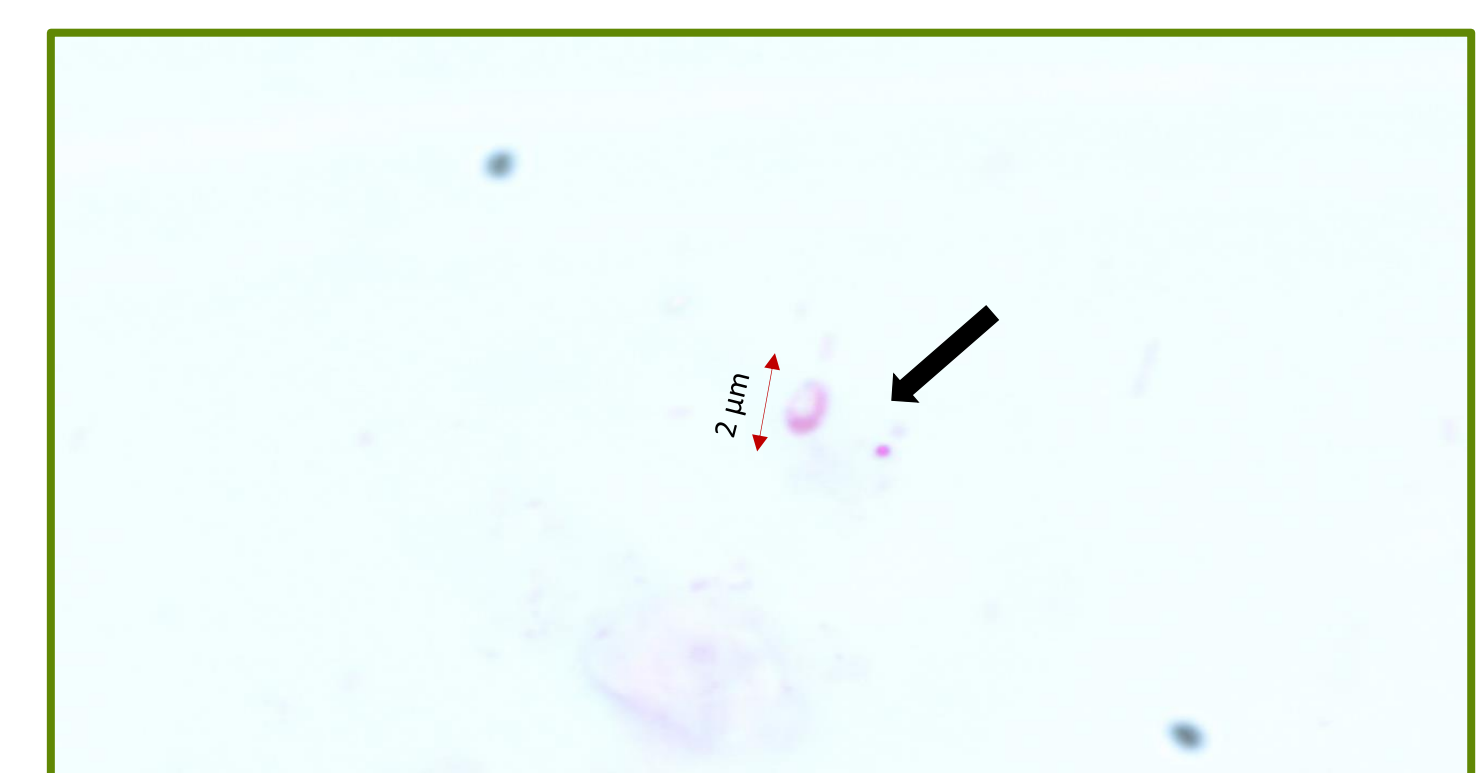


Figure 5: Modified trichrome stain displaying a microsporidia spore at x100 magnification.

CONCLUSIONS

- The detection of human pathogenic microsporidia (*Enterocytozoon bienersi* & *Encephalitozoon*) may be public health risk.
- Using Parasep® does not affect the detection of microsporidia (with or without Triton-X) through microscopy and therefore may be an appropriate way to collect hazardous samples safely.

REFERENCES

- Decraene V., Lebbad M., et al. First reported foodborne outbreak associated with microsporidia, Sweden, October 2009. *Epidemiol Infect.* 2012 Mar;140(3):519-27.
- García, L (2002). Laboratory identification of the Microsporidia. *Journal of Clinical Microbiology*; 40(6):1892-1901
- Galván-Díaz AL., Magnet A., Fenoy S., et al. Microsporidia detection and genotyping study of human pathogenic *E. bienersi* in animals from Spain. *PLoS One.* 2014 Mar 20;9(3):e92289.

ACKNOWLEDGMENTS

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