OvinOralOme: *Ovis aries* oral proteome database

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Introduction

The present study aims to develop a database transferring the methodology used in humans to the storage and cataloguing of proteins present in the oral cavity and other tissues of *Ovis aries*. This database will be essential to develop diagnosis methods to be applied to living animals targeting the most prevalent diseases affecting the stock in Serra da Estrela region.

Saliva collection method developed specifically for veterinary use

Figure 1. Serra da Estrela breed sheep

Figure 2. Sterile tube (50ml) for storage of cotton roll

Figure 3. Grab the cotton roll with the forceps

Figure 3. Rub the cotton roll in the oral vestibule area between the inferior alveolar dental arcade

Figure 4. Place the cotton roll in tube

Information available for each sample collected and stored in Biobank

Table 1. Example of sample catalog

Biobank Code	Flock Code	Freguesia	Sheep ID	Gender	Age	Pasture (X)	Feed (X)	Hay (X)	health	Oral Lesions *	Other diseases *	Recent pathologies	Collection Date	Storage Date	Quanty Storage	Observations
Ia/153	HX23H	Mareco	PT314031930	F	42 M	X		X	Median nutritional			Digestive + Respiratory	19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/154	HX23H	Mareco	PT213471280	F	64 M	X		X	Median nutritional			Digestive Problems	19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/152	HX23H	Mareco	PT31925545	F	118M	X		X	Median nutritional				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/151	HX23H	Mareco	PT316998320	F	23 M	X		X	Median nutritional				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/159	HX23H	Mareco	PT715776437	F	34 M	X		X	Median nutritional				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/176	HX16H	Real	PT214990280	F	22 M	X	X	X	X				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/178	HX16H	Real	PT412224053	F	83 M	X	X	X	X				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/173	HX16H	Real	PT412224015	F	83 M	X	X	X	X				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/156	HX23H	Mareco	PT113471276	F	61 M	X		X	Median nutritional			Digestive Problems	19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/157	HX23H	Mareco	PT813007306	F	73 M	X		X	Median nutritional			Digestive Problems	19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/158	HX23H	Mareco	PT31951468	F	1036 M	X		X	Median nutritional				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/160	HX23H	Mareco	PT413140241	F	44 M	X		X	Median nutritional			Digestive + Respiratory	19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/165	HX29D	Mareco	PT914960010	M	33 M	X	X	X	X				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/167	HX29D	Mareco	PT217384982	F	12 M	X	X	X	X				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/169	HX29D	Mareco	PT712269291	F	76 M	X	X	X	X				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/170	HX29D	Mareco	PT317384830	F	12 M	X	X	X	X				19/02/14	24-02-2014	1,5ml	Storage at -80ºC
Ia/163	HX29D	Mareco	PT817384984	F	12 M	X	X	X	X				19/02/14	24-02-2014	1,5ml	Storage at -80ºC

Catalog ovine saliva samples with the biobank code corresponding to the data of every individual

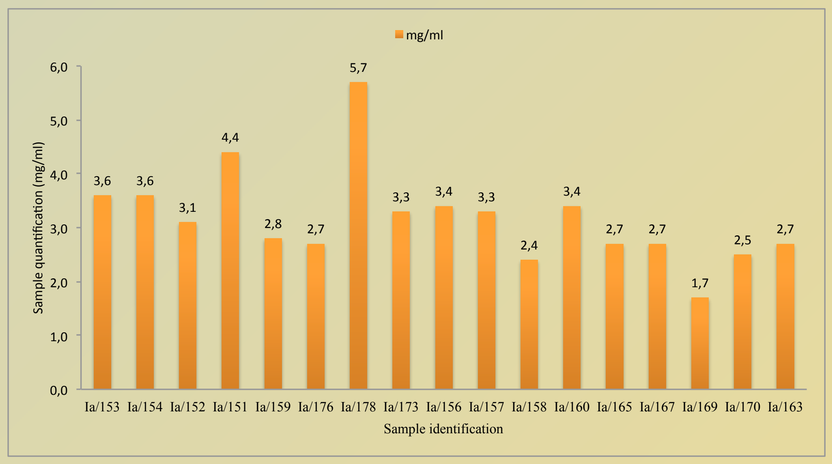
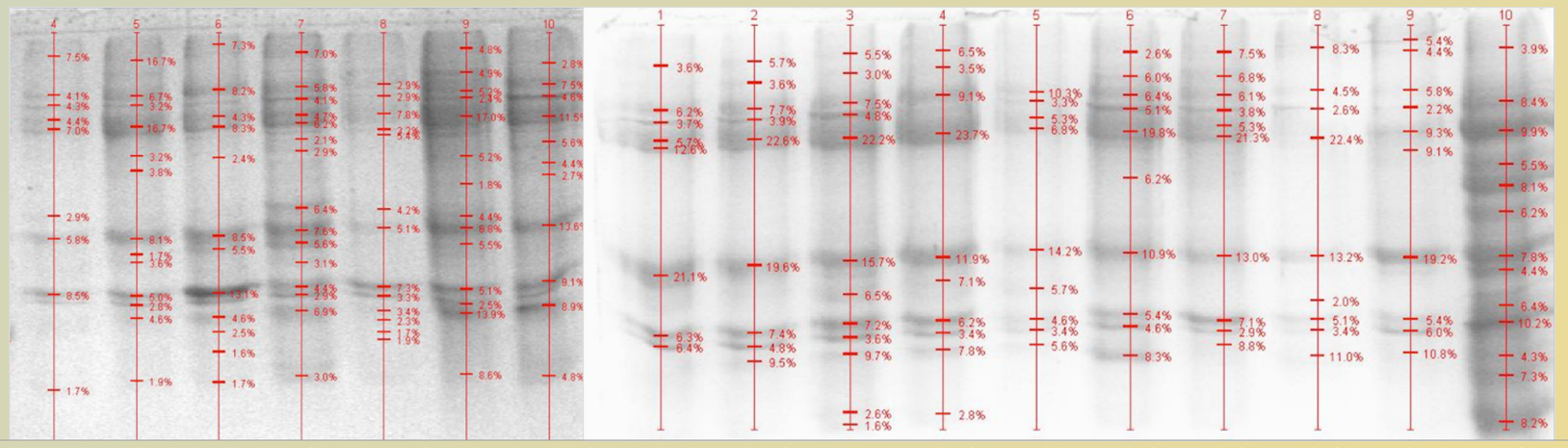


Chart 1. Protein quantification by Micro BCA Protein assay kit (Pierce)

Saliva protein profile



Lanes: Ia/153 Ia/154 Ia/152 Ia/151 Ia/159 Ia/176 Ia/178 Ia/173 Ia/156 Ia/157 Ia/158 Ia/160 Ia/165 Ia/167 Ia/169 Ia/170 Ia/163

Figure 6. **SDS-PAGE** gel image with protein profile in different ovine saliva samples**.** Analysis performed by Quantity One 1-D Analysis Software (BioRad)

Eletrophoresis results show that different samples have different profiles indicating that it may be possible to use them to identify disease markers

OvinOralOme database

The development of this database involves the manual compilation and review of the proteins identified in different studies, relative to *Ovis aries*, with the annotation of the sample characterization and proteomics techniques used.

UniProtKB AC	Name	Organism	Microorganism	Saliva	Blood	Milk	Mammary tissue	Health	Disease (MeSH ID)	Regulation	Age group	Gender	Methods of Sampling	Methods of Analysis	Type of Study	Biomarker	Citation (NCBI ID)	Obs.
P60713	Actin cytoplasmic 1	*ovis aries*		x							Adult	F	collected through a syringe from the parotid catheter, into capped 1.5 mL polypropylene sample tubes	Quantification of total protein (BCA) ; Two-dimensional gel electrophoresis	Proteomic		19615390	
Q73TR7	FadE3_2	*ovis aries*	M. avium subsp. paratuberculosis		x			x	68010283	0,177	Adult	F	Blood was collected by venipuncture in vacutainer tubes	Bovigam IFN-γ release assay ; ELISA ; Post mortem and	non-proteomic	Interferon gamma	23906903	
Q745S0	hypothetical protein	*ovis aries*	M. avium subsp. paratuberculosis		x			x	68010283	0,333	Adult	F	Blood was collected by venipuncture in vacutainer tubes	Bovigam IFN-γ release assay ; ELISA ; Post mortem and	non-proteomic	Interferon gamma	23906903	

Table 2. Database filling example

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Acknowledgments: CI&DETS (PEst-OE/CED/UI4016)

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