

Comparison of Electrophoretic Protein Profiles from Sheep and Goat Parotid Saliva

Elsa Lamy · Gonçalo da Costa ·
Fernando Capela e Silva · José Potes ·
Ana Varela Coelho · Elvira Sales Baptista

Received: 30 October 2007 / Revised: 22 January 2008 / Accepted: 23 January 2008 / Published online: 21 February 2008
© Springer Science + Business Media, LLC 2008

Abstract Saliva provides a medium for short-term adaptation to changes in diet composition, namely, the presence of plant secondary metabolites. Salivary proteins have biological functions that have particular influence on oral homeostasis, taste, and digestive function. Some salivary proteins, such as proline-rich proteins, are present in browsers but absent in grazers. Despite the significance of salivary proteins, their expression patterns in many herbivores are unknown. We investigated the sodium dodecyl sulfate-polyacrylamide gel electrophoresis profile of parotid salivary proteins from two domesticated species, one a grazer, the sheep, *Ovis aries*, and the other a mixed feeder, the goat, *Capra hircus*, both fed on the same conventional diet. With 12.5% polyacrylamide linear gels, we observed uniform patterns of salivary proteins within the two species. In the goat profile, 21 major bands were observed, and 19 in the sheep profile. Each band was subjected to peptide mass fingerprinting for purposes of identification, allowing for 16 successful protein identifications. Marked differences were observed between the species

in the region of 25–35 kDa molecular weights: one band was present in significantly different intensities; three bands were present only in goats; and one band was present only in sheep. This is the first report of a comparison of the protein salivary composition of sheep and goats and suggests that future research should be conducted to reveal a physiological function for salivary proteins related to the differences in feeding behavior of these species.

Keywords *Capra hircus* · Feeding behavior · MALDI-TOF MS · *Ovis aries* · Parotid saliva · Protein identification · Salivary proteins · SDS-PAGE

Introduction

Salivary function is closely related to oral health and digestion. Humphrey and Williamson (2001) organized the functions of saliva into five major categories: (1) lubrication

E. Lamy · E. S. Baptista
ICAM-Instituto de Ciências Agrárias Mediterrânicas,
Universidade de Évora,
Evora, Portugal

G. da Costa · A. V. Coelho
ITQB-Instituto de Tecnologia Química e Biológica,
Oeiras, Portugal

F. C. e Silva
Departamento de Biologia, Universidade de Évora,
Evora, Portugal

F. C. e Silva · J. Potes
Centro de Investigação em Ciências e Tecnologias da Saúde,
Evora, Portugal

J. Potes
Departamento de Medicina Veterinária, Universidade de Évora,
Evora, Portugal

A. V. Coelho
Departamento de Química, Universidade de Évora,
Evora, Portugal

E. S. Baptista (✉)
Departamento de Zootecnia, Universidade de Évora,
Evora, Portugal
e-mail: elsaba@uevora.pt