

Lipid composition of Canine Prostate Tissue

NM Attar-Bashi¹, K Orzeszko², RF Slocombe² and AJ Sinclair¹

¹*Department of Food Science, RMIT University, Melbourne, Victoria, 3001*

²*School of Veterinary Science, University of Melbourne, Melbourne*

Background - It is widely reported that an association exists between dietary fat intake and the incidence of prostate cancer in humans. In order to study this association, there is a need for an animal model where prostate carcinogenesis occurs spontaneously. The canine prostate is considered a suitable experimental model for prostate cancer in humans since it is morphologically similar to the human prostate and both humans and dogs have a predisposition to benign and malignant prostate disease.

Objective – To examine the fatty acids and lipids profiles of the normal canine prostate tissue from nine dogs.

Design –Prostate tissue lipids were converted to fatty acid methyl esters for determination of the tissue total, phospholipids and triacylglycerol fatty acid content by capillary GLC. Prostate tissue lipids were also analysed by TLC-FID to quantify the percentage of individual lipid classes in the tissue.

Outcomes - Total fatty acids, phospholipid and triacylglycerol fatty acid analysis showed that the major fatty acids were palmitic, stearic, oleic, linoleic, and arachidonic acids. The omega-3 fatty acid were present at <3% of total fatty acids. The n-3/n-6 ratio was 1:11, 1:13 and 1:8 in total, phospholipids and triacylglycerol fatty acids, respectively. The lipid composition analysis showed that the two major lipid classes were phospholipids and triacylglycerols.

Conclusions- This study showed that the canine prostate has a low level of n-3 fatty acids and a low n-3/n-6 ratio. This is perhaps due to the diet of the dogs having low n-3 fatty acid content.