

10 Acknowledgements

Firstly, I'm grateful to Allah for providing strength and health to conduct the present study. I would like to express my deeply grateful thanks to my supervisor, Prof. Dr. Univ. Helmut Hartmann for his execution guidance, endless help, and encouragement and follow up throughout the execution of research work and preparation of the thesis.

My thanks also extended to the worker team at the Clinic of Animal Reproduction, institute of Animal Reproduction, Faculty of Veterinary Medicine, Free University of Berlin (Director: Univ Prof. Dr. W. Heuwieser) for providing calves for the experimental work. Also I would like to extend my deeply thanks to Ms I. Dittmann and the technician team at Institute of Veterinary Physiology, Faculty of Veterinary Medicine, Free University of Berlin, in particular Mrs. A. Fischer, Mrs. E. Nadolny and Mrs. K.Wolf for their help during my research and laboratory assistance. I would like to express my thanks to Mrs. Dr. F. Stumpf for her useful advice and help.

My thanks also extended to my colleagues at the Department of Physiology and Camel Research Unit, Faculty of Veterinary Medicine, University of Khartoum, Sudan; particularly Dr. Ahmed Omer, Dr. Taj Elsir Idris, Dr. Wally Eldeen Elsadig and Prof. Hamid Suleiman for their help during my research work in Sudan. My thanks also to my colleagues at College of Veterinary Medicine and Animal Production, Sudan University of Science and Technology, Sudan, in particular Dr. Shadia Abdelati and Dr. Sumia for their help during my research in camels. My thanks also extended to my best friends Mohamed Yahia, Nuha Elzien and Osama Hassan. I would to express my thanks to Dr. K. Abdoun for his useful advice during my research work.

Also I extended to my thanks to the technician team at the clinic of small animals, Faculty of Veterinary Medicine, Free University of Berlin and the Institute of Veterinary Medicine Diagnostic Laboratory (IVD), Berlin, Germany for biochemical analysis of the samples. I extended my appreciation to the worker team at Institute of Biometry and Data Processing, in particular Mrs. R. Schmitz and Mrs. Dr. G. Arndt for statistical help.

Finally I extended my deeply thanks to my family for their endless support and help. I would to thank German Academic Exchange Service (DAAD) and University of Khartoum for financial support.