A202 Embryology, Developmental Biology and Physiology of Reproduction

Vaginal cytology as a tool to predict the time of ovulation in goats and sheep

V.L. Brair[1,2], A.P.P. Schmidt[2], L.M. Figueira[2,3], G.B. Vergani[4], Y.P. Diógenes[5], P.S.C. Rangel[1], J.M.G. Souza-Fabjan[2], J.F. Fonseca[6]

[1]UNIGRANRIO - Universidade do Grande Rio, Duque de Caxias, RJ, Brasil; [2]UFF - Universidade Federal Fluminense, Niterói, RJ, Brasil; [3]UFLA - Universidade Federal de Lavras, Lavras, MG, Brasil; [4]UNESP - Universidade Estadual Paulista, Jaboticabal, SP, Brasil; [5]UECE - Universidade Estadual do Ceará, Fortaleza, CE, Brasil; [6]Embrapa Caprinos e Ovinos - Embrapa Caprinos e Ovinos, Sobral, CE, Brasil.

The detection of ovulation is of great importance for the use of reproductive biotechnologies in small ruminants. The ovulation is efficiently determined by ultrasound (US), equipment that is not always available and of relatively high cost. Therefore, the aim of this study was to identify the efficacy of vaginal cytology as a tool to determine the ovulation time in these species. The study was carried out during the non-breeding season, in Coronel Pacheco, Minas Gerais (21°35'S and 43°15'W). Nine goats and 11 ewes (all pluriparous), ageing on average three years old, under intensive system were used. All females received a short-term estrous induction treatment, with 0.3 g progesterone (CIDR®, Pfizer Aninal Health, São Paulo, Brazil) for six days, and 24 h before its removal, 30 µg d-cloprostenol (Prolise®, Syntex, Buenos Aires, Argentina) and 200 IU eCG (Novormon® 5000, Syntex) i.m. were administered. After CIDR removal, every 12 h until ovulation detection, two procedures were performed: 1) vaginal smear with swab, stained with Fast Panoptic kit (Laborclin Ltda, São Paulo, Brazil), where 100 cells were counted in each moment and 2) transrectal US (7.5 MHz probe; Mindray®, Modelo M5 Vet, Mainland, China). Nonparametric data were analyzed by Mann Whitney, Kruskal Wallis and Dunn test, while parametric data were compared by Student t test and ANOVA. In the comparison between the cytological profile and US, were calculated the negative and positive predictive value, sensitivity and specificity. All analyses were performed by Bioestat 5.0 program and the confidence level was 5%. Ovulation rate was 88% (8/9) in goats and 100% (11/11) in sheep. In order to determine the cell standard to be selected (parabasal, intermediate, superficial and anucleated), analysis of their averages was performed, every 12 h. This analysis aimed to identify which standard differed from the previous one and also from the the other cells at the moment of ovulation. Thus, the chosen cell standard in goats was the superficial ($P < 0.05$) and this was characterized by a low coefficient of variation (CV) of 6%. The specificity found at 60 to 48 h before ovulation was 100%; from 36 to 24 h was 88%; and 12 h was 75%. The sensitivity at the moment of ovulation was 88%. The negative predictive value (NPV) was 97%, higher than the 64% found for positive predictive value (PPV), resulting in an accuracy of 89.6%. In sheep, the standard chosen was anucleated, but it had a high CV (23.7%), which led to non-high accuracy (66.7%). Therefore, PPV and NPV were 26% and 88%, respectively; the specificity was 45% and 64% at 24 h and 12 h before ovulation respectively; and finally, the sensitivity at the moment of ovulation was 55%. It can be concluded that the vaginal cytology may be an efficient tool to determine the moment of ovulation in goats, however it is less accurate in sheep.

Financial support: CNPq e AGIR/UFF.