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Effect of Estrogen and Progesterone on seed germination

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Abstract

Early pregnancy detection in dairy cattle is an integral part of a successful animal husbandry practice. A simple seed germination technique (Punyakoti test) comprises observation of differential seed germination response of wheat seeds to diluted fresh urine samples as reflected by significant inhibition of germination percentage in pregnant cow urine when compared to non pregnant cow urine. Hormone metabolites excreted through urine might affect the seed germination in pregnant cow urine. In the present study an attempt was made to test the effect of hormones (in their natural forms) at different concentrations of estrogen (17- β estradiol) and progesterone on wheat and green gram germination. Stock solutions of estrogen and progesterone were prepared in alcohol (1mg/ml) and serial dilutions made using distilled water to get the concentrations of T1=10, T2=1, T3=0.1 and T4=0.01 μ g/ml respectively in treatment groups. About 15 seeds each of wheat and green gram were taken in sterile Petri dishes into which 15ml of each test preparation was poured. The treatments were compared with distilled water and alcohol controls. The study was conducted for a period of five days during which seed germination was observed after 48 hrs and shoot lengths were also measured by the end of study. The average seed germination and shoot length in treatment groups did not vary significantly ($P>0.05$) when compared with that of control groups. Thus from the present study, it can be concluded that estrogen and progesterone in their natural form will not affect seed germination and shoot length.

Keywords: Estrogen, Progesterone, Seed Germination, Pregnancy, Dairy Cattle.