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“Bridging the gap between increasing knowledge and decreasing resources”

## Seed Germination Test for Pregnancy Diagnosis from Urine in Alpacas (*Vicugna pacos*)

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### Abstract

Collecting of urine belongs to non-invasive research methods, which are popular nowadays. They enable to collect data without handling or capturing animals. The aims of this research were to examine the possibility of catching fresh urine directly from female alpacas (*Vicugna pacos*) and to evaluate the seed germination test as a pregnancy diagnostic test. The research was carried out in the period from April 2013 to February 2014 on the three Czech private farms. Urine was collected non-invasively into plastic cups fastened on a rod, in 6–8 week intervals. In total, 60 urine samples were collected from twelve alpacas. For the seed germination test, mung beans (*Vigna radiata*) and winter wheat seeds (*Triticum aestivum*) were used and urine was diluted to 1:4 and 1:14 ratios. Germination rates were counted 24, 48, 72, 96, and 120 hours after establishment of experiments. Lengths of shoots were measured after 120 hours. It was found out that urine of alpacas inhibited germination and growth of seeds in general. The inhibitory effect of urine on seed germination and growth was higher with the usage of urine with 1:4 concentration than with 1:14 concentration. Usually, seeds germinated and grew better in urine of pregnant females than in urine of non-pregnant females. Germination rates of mung beans treated with urine with 1:4 concentration counted 24, 48, and 72 hours after establishment of experiment were significantly lower in urine of non-pregnant females than in urine of pregnant females (Mann-Whitney U test:  $p < 0.05$ ). However, season seemed to be an important factor, which could influence the results of the seed germination test. This fact should be considered especially in case of using this test in tropics, because the results could vary under different conditions. Further research was recommended, but it seems that mung beans treated with urine with 1:4 concentration could be usable for pregnancy diagnosis in alpacas by both seed germination rates counting and shoot lengths measuring.

**Keywords:** Gestation, mung bean, non-invasive methods, shoot length, wheat