## Animal welfare, etológia és tartástechnológia



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## Effect of $\alpha$ -tocopherol *in ovo* supplementation on chick embryo development

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 $\alpha$ -tocopherol (vitamin E) effects on the reproductive processes, participating in the synthesis of sex hormones. Vitamin E is not synthesised by intestinal microflora of birds and its deficiency can disturb of pre- and post- hatch chicken development. However, in the available literature there is lack of data concerning the effect of high dose of  $\alpha$ -tocopherol on embryogenesis and endocrine glands in avian species.

In 4<sup>th</sup> day of incubation (E4) the fertilized chicken eggs were injected with 0, 0.5 and 5 mg/egg of  $\alpha$ tocopherol, dissolved in 50  $\mu$ l peanut oil. In E14 and E20 the blood samples and gonads, heart and liver were collected from 20 embryos of each group. The organs were weighted and frozen in -80°C to further histological measures while blood samples were centrifuged and blood plasma was stored in -20°C for the determination of testosterone, progesterone and estradiol by RIA.

The results of experiment indicate that  $\alpha$ -tocopherol *in ovo* supplementation on the E4 decreased embryo mortality between E4-E6 but increased during hatching period (P $\leq$ 0.05). Moreover there was disturbed in sex ratio which ranged as 7 males to 3 females. Simultaneously, supplementation  $\alpha$ -tocopherol at a dose of 0.5 and 5 mg per egg decreased about 30% of estradiol concentration in the blood female embryos in E20.

Concluded, *in ovo* supplementation of  $\alpha$ -tocopherol can disturb embryogenesis of chicken embryos.