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INFLUENCE OF CALCAREA CARBONICA 30C ON WEIGHT AND THICKNESS OF EGG SHELL AND INDEX OF EGG SHAPE IN DOMESTIC OSTRICHES (STRUTHIO CAMELUS DOMESTICUS)

Andrey Kurtenkov

University of Forestry, Faculty of Veterinary Medicine, Sofia, Bulgaria
E-mail: akurtenkov@ltu.bg

ABSTRACT

Influence of Calcarea carbonica 30c on weight and thickness of egg shell and index of egg shape in domestic ostriches (Struthio camelus domesticus) during the first and second egg-productivity years was investigated. Only according to the index of egg shape remedy has done some work; weight as well as thickness of egg shell did not increase statistical significance between treated and untreated animals, and values of coefficient of variation of the index of egg shape was lower in comparison with the control group.

Key words: ostriches, homeopathy, egg shell, egg index.

Introduction

The experiments with Calcarea carbonica had been done by Hanuman and he used for this purpose the powder of crushed middle layer of the oyster shell. The rich chemical composition of the substance makes it a drug with a wide variety of indications applicable at all stages of life: it contains mainly $CaCO_3$, but also a lot of various substances such as: Si, Mn-salts, Fe, heavy metals, Mg-salts, and a plurality of amino acids. This composition explains the powerful effects on the metabolism, especially the metabolism of P and Ca, lymph and bone tissues, skin and mucous membranes. It gets worse during cold weather, full moon and new moon. There are desires for disgusting food and sweets. Calcarea carbonica is a drug with a deep action indicated for carrying out the treatment in subjects with both psoric and with sycotic diseases in dominance still a psoric reactive type. (Shefdevil et all., 2000). Calcarea carbonica is a huge disease with extensive symptoms. The state Calcarea is rarely added in the form of a new layer, but more often is a primary, "primary cell" interference (Vitulkas, 2001). As with most non-toxic substances in normal doses, Hahnemann carried pathogenesis by using dilution 30c. Therefore, the resulting symptoms are not just primary subtoxic or toxic effects but clinical symptoms, which are an expression of the general type of reaction of the individual. Nowadays, it is also preferable to use this dilution. (Demark et all., 1998). This is the maximum potency that is recommended for human beings (Alefirov, 2002). In farm birds Calcarea carbonica was used much more limited in the past (The Poultry Doctor. 1999) and at significantly greater number of states today (Madrewar, 2003).

Aim

In the present study, we aimed to test the influence of homeopathic remedy Calcarea carbonica 30c on weight and thickness of egg shell and index of egg shape in domestic ostriches (Struthio camelus domesticus) during the first and second egg-productivity years.

Material and methods

The study was conducted on a farm in the municipality of Kyustendil in the period from April to September 2014th and 2015thr. The animals (ostriches – bearing of the same origin and of the same age entering into the first oviparous year in the spring of 2014, 12 individuals) were divided into two groups of six birds: test treated with Calcarea carbonica 30c with water drinking once per every three days for the months of April, May and June and a control group. The measurement of the small and large diameter (to the nearest 0.5 mm) of the egg was performed in all laid eggs over the study period as the egg index was calculated by dividing the multiplications hundred small diameter to the large diameter of the egg (to the nearest 0.01). The measurement of the mass (to the nearest 0.1 g) and the thickness (to the nearest 0.1 mm) of the eggshell was made only of those eggs which were classified as fertilized at the first candling (sixth day of incubation) as the thickness of the egg was measured through the opening through which we eliminated the contents of the egg (the differences in the thickness between different points in the ostrich egg is considered insignificant (Turevich, 2000)). The variation-statistical processing of the results was carried out with the program Statgraphics Statgraphics Plus Version 7.0 (Statistical Graphics Corporation (and Manugistics, Inc.), 1993).

Results

The summerd results of the carried out measurements had been presented in Table 1. Only regarding on the index of the egg it was found a significant effect; in regard to the mass and thickness of the eggshell it was not observed a statistically significant difference between the treated animals and the untreated ones.

Table 1: Effect of applying of Calcarea carbonica 30c on weight of egg, weight of egg shell, thickness of egg shell and index of the egg shape

Traits (Average ± Standard deviation)	Groups		Significance level
	Control (n = 6)	Treated (n = 6)	
First egg-productivity year			
Egg weight (g)	1497.5 ± 319.55	1518.5 ± 317.95	0.5739
Eggshell weight (g)	270.1 ± 30.80	272.9 ± 30.99	0.3901
Eggshell thickness (mm)	1.98 ± 0.24	1.99 ± 0.23	0.1670
Egg index	85.0 ± 5.22	83.8 ± 3.13	0.0513
Second egg-productivity year			
Egg weight (g)	1510.1 ± 309.03	1.520 ± 295.50	0.5209
Eggshell weight (g)	273.1 ± 29.00	275.1 ± 27.86	0.1099
Eggshell thickness (mm)	2.00 ± 0.19	1.99 ± 0.20	0.2007
Egg index	84.9 ± 4.92	83.1 ± 3.01	0.0480

The comparison between the variation coefficients for the individual groups is an interesting topic. In the treated birds it is observed statistically significant (at P = 0.0408) lower degree of variation in the index of the form of the eggs. The comparison of the coefficient of correlation between the mass of the shell and the mass of the egg in the various groups is another interesting thing – in this case there is practically no difference. (at P = 0.9611).

Discussion

As it is seen from the results of the measurements it is difficult to be defined some explicit trends. The large number of factors that influence on the quality of the eggshell (Delchev and Mitkov, 1984) suggests that homeopathic medicines, with their balancing effect on the body, have the potential to optimize the underlying signs. The results show that when the relevant drug is chosen we shouldn ‘t pays so much attention on the superficial comparison of the starting substance and the desired effect. It is worthwhile to be paid attention on the fact that the predominant side of Calcarea carbonica in the human being is the right one (headache of the most varied nature, localized in the upper region on the right, tuberculosis with predominant lesions in the upper right lung, etc.) (Alefirov, 2002)), and the lateralisation in the anatomy of the reproductive system in birds is so highlighted and obvious as for any other group of organs (Gigov, 1985).

In the treated animals, we have a stronger degree of "clustering" with respect to the index of the shape of the eggs obtained from the treated group around values that may be supposed to have been optimal prior to the expansion of the artificial incubation. Ultimately, the most important function of the shell is the preservation of the egg shape (Kartashev and Shilov, 1982), while the deviations from the normal form lead to a deterioration of other qualities of the eggs (Mitkov, 1984) and from this standpoint it is understandable that the homeopathic preparations activate the vital force of the organism and lead to such effects.

The fact that we have no certain reasons to think that the homeopathic preparation which was used has any effect may be associated with the possible undesirable effects of external factors which obviously can largely neutralize to a great extend the contained information inside when it is added to the total drinking water. It is relatively easy for a person to comply with a number of conditions when using homeopathic products in humans, which under actual production conditions of the livestock farm cannot or at least very difficult could be avoided (getting fodder and litter in the drinking water, sunlight, high temperature, etc.). This, of course, does not mean that in the process of working with animals, we shouldn‘t makes efforts to ensure the information stored in the homeopathic medicine access to the body.

Conclusion

Only in relation to the egg index it was received statistically significant difference to a very small extent. Also, with regard to the form index, it was observed a smaller degree of variation which could be interpreted as "striving" to lay eggs that were optimal during the natural (or close to) breeding of the species. The homeopathic remedies, balancing the individual's vital energy, lead to the expression in the phenotype of such signs that have been suppressed during the rise of industrial livestock. When prescribing homeopathic medicines, we should not glide over the surface comparison of the starting substance and the desired effect. The present results were obtained in female ostriches during the first two ovine years, the subject of future research will be how Calcarea carbonica affects older maturing as well as growing animals.

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