EFFECT OF SOD-RICH MELON PULP CONCENTRATE AND ORGANIC SELENIUM ON FERTILITY PARAMETERS IN BROILER BREEDERS

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Excessive levels of Reactive Oxygen Species (ROS) can negatively impact reproductive performance and fertility in poultry. Avian semen contains an extremely high proportion of long–chain polyunsaturated fatty acids (PUFAs) in the phospholipid fraction of spermatozoa (spz), which makes them sensitive to ROS and oxidative stress, causing male infertility. Production of ROS in the female reproductive tract is also favored by the high metabolic rate (DNA replication, cell division) of the embryo. In several species (humans, rodents, horses, swine, shrimps), melon SOD supplementation was previously shown to induce beneficial effects on reproductive performance. This study investigates the effects of an antioxidant combination on fertility parameters (semen quality, laying rate and hatching parameters) in males and females broiler breeders and on the subsequent day-old chicks (DOC) quality. 576 females and 144 males broiler breeders were divided in 2 groups, supplemented either with inorganic Se (control group) or a combination of antioxidants (AOX) containing organic Se (Se-yeast, Alkosel) and melon pulp concentrate (Melofeed) during 6 weeks (37-43 wks). Semen concentration and the number of spz were respectively improved by 9% (p = 0.009) and 17% (p = 0.03) with AOX, which also increased the laying rate (+2%, p < 0.001), the fertility rate (+4%, p = 0.022) and the hatching rate (+4%, p = 0.007). As a result, the percentage of marketable chicks was increased by 3%. This study confirms previous results on fertility in breeder layers and underlines the interest of using primary antioxidants to improve reproductive performance and fertility parameters in poultry.

250 words