EVALUATION OF ORGANIC SELENIUM SOURCE (ALKOSEL) BIOAVAILABILITY BY 17 STUDIES ON SELENIUM ENRICHMENT IN EGGS

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Selenium (Se) is an essential element for poultry nutrition and a great deal of information has been accumulated for the last 20 years indicating that dietary form of Se is a major determinant of its efficiency. Se status of the eggs is of great importance for the maintenance of the antioxidant system of the developing chick embryo. Moreover, enriching eggs in Se is also of great interest as a new potential source to help reaching Se recommended daily allowance in human nutrition. Also, different Se sources (inorganic/organic) are available on the market and egg Se bioavailability represents an accurate measurement of Se product efficiency and quality. The objective of this study was to review existing information of 17 studies (performed on laying hens, partridges, pheasants and quails) on Se enrichment in the different egg compartments from adult laying poultry. Animals were supplemented with sodium selenite (inorganic Se, SS) or Se-yeast (organic Se, SY: ALKOSEL) at different supplementation periods (7-140 days) and doses (0-0.7 ppm total Se). A statistical meta-analysis taking into account the number of animals per study highlights increased Se concentration with SY compared to SS in the different egg compartments: Se level was improved up to +336%, +154%, +38% and +270%, respectively for albumen, whole egg, eggshell and yolk, from eggs laid by SY-supplemented animals compared to SS (p < 0.05). This meta-analysis confirms that organic Se was more efficiently deposited in the egg albumen compared to yolk and underlines the robustness of Se deposition in the egg compartments following SY supplementation compared to SS.

250 words