Effect of dietary selenium source on selenium deposition in broiler muscle tissue

M. Rovers[1], L. Segers[1], G., Du Laing[2]

[1]Orffa Additives BV, Werkendam, Netherlands
[2]Ghent University, Faculty of Bioscience Engineering, Coupure Links 653 Bl. B 9000 Ghent, Belgium

INTRODUCTION

Selenium is an essential trace element for animal nutrition. Dietary selenium sources can be divided into organic and inorganic selenium. Organic selenium allows to build Se reserves in tissues, mainly in muscles, in the form of selenomethionine which can be used in stress conditions to improve antioxidant defences (Surai, 2016). The aim of this preliminary study was to investigate the effect of different selenium sources on the selenium deposition in broiler muscle tissue.

MATERIALS & METHODS

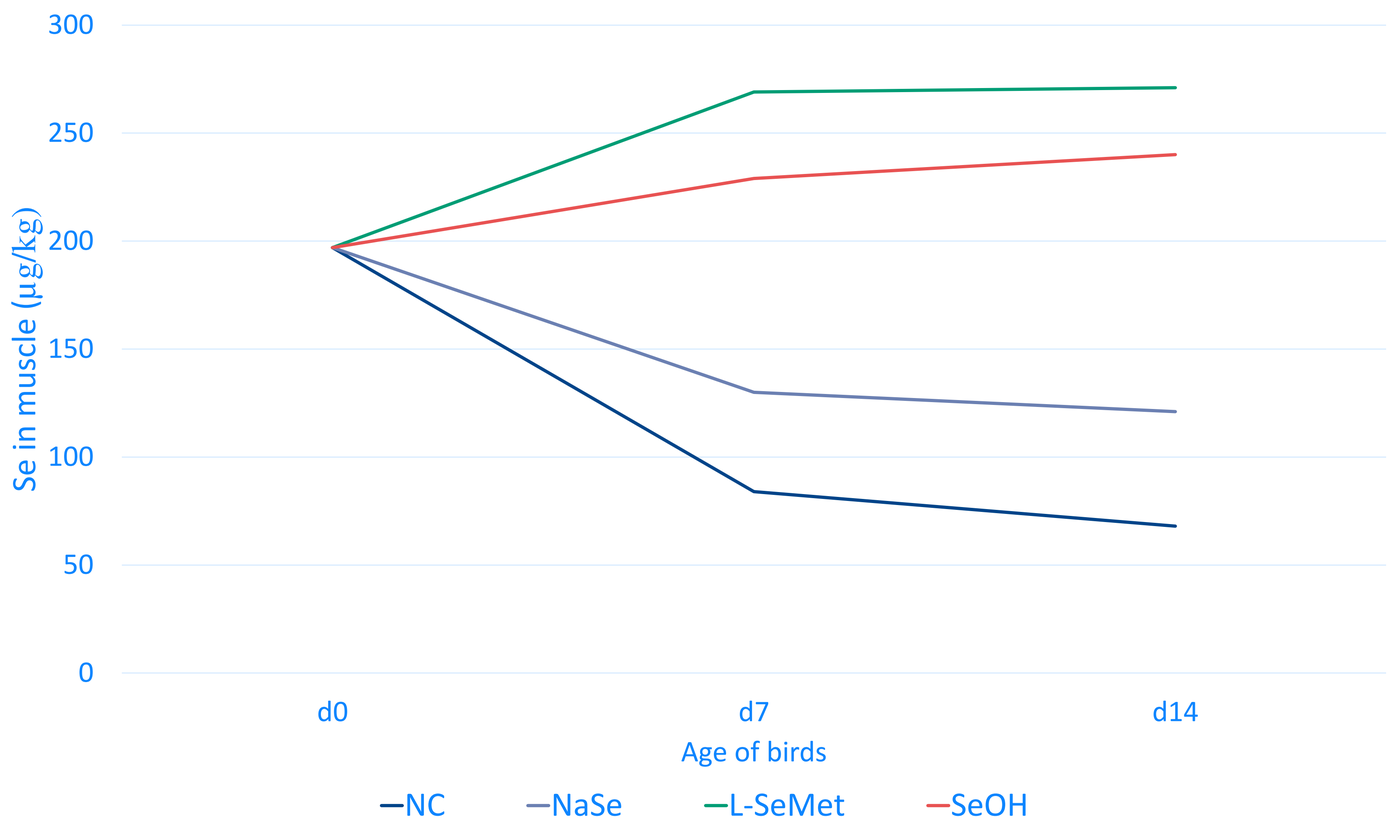
- In total 126 birds (Ross 308) male birds
- 4 dietary treatments with 30 birds per pen
- Starter diet 0-14d with different Se sources (see table 1)
- Se in muscle analyzed by ICP-MS
  - Day 0 (6 birds)
  - Day 7 (6 birds per treatment)
  - Day 14 (6 birds per treatment)

Table 1: Dietary treatments

	Dosing Se (mg/kg feed)	Se type	Se source
T1	0		
T2	0,2	Inorganic	Sodium selenite (NaSe)
T3	0,2	Organic	L-Selenomethionine (L-SeMet, Excential Selenium4000)
T4	0,2	Organic	Seleno-hydroxy-methionine (SeOH, Selisseo)

RESULTS

Figure 1: Se in muscle (µg/kg) on day 0, day 7 and day 14



- Non supplemented birds: Se in muscle decreases
- **Inorganic Selenium**: Se in muscle decreases
- **Organic Selenium**: Se in muscle increases

CONCLUSION

Results from this trial suggest that Se deposition in broiler muscle tissue is dependent of the supplemented Se source. Supplementing inorganic Se (NaSe) results within 7 days in a decrease of Se in broiler muscle, while supplementing organic sources results in an increased level of Se in broiler muscle and these levels are stable over time. These findings provide a good indication to further study the effect of Se sources on the selenium status in poultry in future.