

Comparison of Bioactive Compound Content in Egg Yolk Oil Extracted from Eggs Obtained from Different Laying Hen Housing Systems

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Abstract : Egg yolk oil is a natural source of bioactive compounds such as unsaturated fatty acids, oil soluble vitamins, pigments and others. Bioactive compound content in egg yolk oil depends from its content in eggs, from which oil was extracted. Many studies show that bioactive compound content in egg is correlated to the content of these compounds in hen feed, but there is also an opinion that hen housing systems also have influence on egg chemical content. The aim of this study was to determine which factor, laying hen housing system or hen diet, has a primary influence on bioactive compound content in egg yolk oil. The egg yolk oil was extracted from eggs obtained from 4 different hen housing systems: cage, barn and two groups of free range. All hens were fed with commercially produced compound feed except one group of free range hens which get free diet – pastured hens. Extracted egg yolk oils were analyzed for fatty acids, oil soluble vitamins and β -carotene content. α -tocopherol, ergocalciferol and polyunsaturated fatty acid content in egg yolk oil was higher from eggs obtained from all housing systems where hens were fed with commercial compound feed. β -carotene and retinol content in egg yolk oils from free range free diet eggs was significantly ($p>0.05$) higher than from other eggs because hens have access to green forage. Hen physical activity in free range housing systems decreases content of some bioactive compound in egg yolk oil.

Keywords : egg yolk oil, vitamins, caged eggs, free range

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