

# Comparative Study of Lipid Composition and Fatty Acid Content of Different Egg Yolks.

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A comparative study has been made of the major lipid classes' composition and the fatty acid content in the yolk of eggs from ostrich (*Struthio camelus*), turkey and quail. There were considerable differences in the total lipid content between the yolks. In all groups of yolks neutral lipids were the major fractions but their proportions varied among species. The neutral lipids were predominantly triglycerides, lesser amounts of sterols and in decreasing amounts, sterol esters, free fatty acids, diglycerides, and monoglycerides; polar lipids were mainly phosphatidylcholine, phosphatidylethanolamine and sphingomyelin.

Gas chromatography (GC) analysis of fatty acid methyl esters from the lipids of all egg yolks revealed the presence of 31 fatty acids. The main total lipid saturated, monounsaturated and polyunsaturated fatty acids in all yolks were C16:0, C16:1 $\omega$ -9, C18:0, C18:1 $\omega$ -9, C18:1 $\omega$ -7, C18:2 $\omega$ -6 and C20:4 $\omega$ -6.

Turkey egg yolks contained significantly ( $P < 0.05$ ) higher  $\omega$ -3 fatty acids proportion (e.g. 18:3 $\omega$ -3 18:4 $\omega$ -3 22:5 $\omega$ -3 and 22:6 $\omega$ -3) than quail and ostrich egg yolk as well as the lower  $\omega$ -6/ $\omega$ -3 ratio. The SFA/PUFA, C16:0/C18:0, C18:1 $\omega$ -9/C18:2 $\omega$ -6 as well as  $\omega$ -6/ $\omega$ -3 ratios were significantly ( $P < 0.05$ ) higher in the lipids of the ostrich egg yolks compared with those of the turkey and quail. The opposite was observed with SFA/MUFA ratio.

The specific variation of lipid contents and fatty acid composition between samples may relate to the species, age, egg and yolk weight, and diet.

**Key words:** Egg yolks; lipids; fatty acids; ostrich; turkey; quail